DOCUMENT RESUME

ED 252 495 SP 025 499

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TITLE Institutionalization of Statewide Instructional Improvement.
INSTITUTION Research for Better Schools, Inc., Philadelphia, Pa.
SPONS AGENCY Maryland State Dept. of Education, Baltimore.; National Inst. of Education (ED), Washington, DC.
PUB DATE Oct 84
NOTE 234p.; For related document, see ED 222 486, ED 223 553, ED 238 872-873, and SP 025 498.
PUB TYPE Information Analyses (070) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC10 Plus Postage.
DESCRIPTORS Academic Achievement; Delivery Systems; Elementary Secondary Education; Mastery Learning; *Program Development; Program Evaluation; *Program Implementation; *Research Utilization; School Districts; *State Programs; *Teacher Improvement; *Teaching Methods
IDENTIFIERS *School Improvement Through Instructional Process

ABSTRACT

The School Improvement Through Instructional Process (SITIP) Program, initiated in Maryland in 1980, was concerned with improving classroom and school activities through the application of process-product research on classroom and school effectiveness. All 24 local education agencies voluntarily implemented one or more of four research-based instructional improvement models: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. They were assisted in their efforts by the Maryland State Department of Education, and both local and state staff were encouraged to design and carry out their tasks in ways suggested by the research on planned change. To facilitate data-based decision-making with respect to SITIP, evaluation was conducted and three major reports were developed: the first focused on implementation, the second on impact, and the present report focuses on institutionalization. The report begins with an overview of SITIP, and discusses evaluation, state initiatives, and local implementation. The final chapter presents a summary and conclusions. (JD)

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Jane M.E. Roberts

and

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INSTITUTIONALIZATION OF STATEWIDE INSTRUCTIONAL IMPROVEMENT

by

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October 1984

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The work upon which this publication is based was funded in part by the Maryland State Department of Education and in part by the National Institute of Education. The opinions expressed do not necessarily reflect the position or policy of either organization, and no official endorsement should be inferred.

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I. INTRODUCTION

Over the last few years, federal, state, and local interest has focused on improving classroom and school activities through the application of process-product research on classroom and school effectiveness. The organizational structures and delivery systems used in these endeavors are sometimes influenced by the research on planned change for school improvement.

In Maryland, application of such research is apparent in the School Improvement Through Instructional Process (SITIP) program, initiated in 1980. All 24 local educational agencies (LEAs) voluntarily implemented one or more of four research-based instructional improvement models: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. They were supported in their efforts by the Maryland State Department of Education (MSDE), and both local and state staff were encouraged to design and carry out their tasks in ways suggested by the research on planned change.

In order to facilitate data-based decision-making with respect to SITIP, evaluation was conducted in such a way as to provide relevant information in a timely fashion. Three major reports were developed: the first focused on implementation, the second on impact, and the present report focuses on institutionalization.*

This report begins with an overview of SITIP, and discusses: evaluation, state initiatives, and local implementation. The final chapter presents a summary and conclusions.

---

* These publications and others describing SITIP activities are listed in the bibliography of this report.

II. OVERVIEW OF MARYLAND'S SCHOOL IMPROVEMENT PROGRAM

This chapter presents an overview of Maryland's current school improvement program, outlines the four instructional models used in the program, and summarizes the results reported for the period December 1980 to June 1983.

The SITIP Design

Maryland's School Improvement Through Instructional Process (SITIP) program involves local education agencies (LEAs) in voluntarily implementing instructional processes proven to be effective in increasing student achievement. The instructional models used in SITIP are: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. All four models are research-based and were selected by the Maryland State Department of Education (MSDE) as potentially useful to all schools for improving instruction in all structured academic curricula. During the 1981-82 school year, nearly 700 teachers in grades K-12 used one or more of the models in their instruction of mathematics, reading/language arts, science, social studies, or other academic areas. During the 1982-83 school year, over 980 teachers in 139 schools were similarly involved.

SITIP was designed by MSDE as a multi-year program consisting of interactive activities which are outlined below and presented in Figure 1.

1. Preparation (open systems planning): Identify needs and potential solutions. Draft the SITIP design.

2. Initial Commitment: Review plan with LEA superintendents. Obtain approval for local teams to attend awareness conferences.

3. Awareness Conferences: Have each of the instructional improvement models presented by its developer at awareness conferences attended by LEA teams, MSDE staff, and interested others. Describe the design and nature of (voluntary team) involvement.

4. Local Proposals/Plans: Help cross-hierarchical local teams draft proposals to implement one or more of the models.

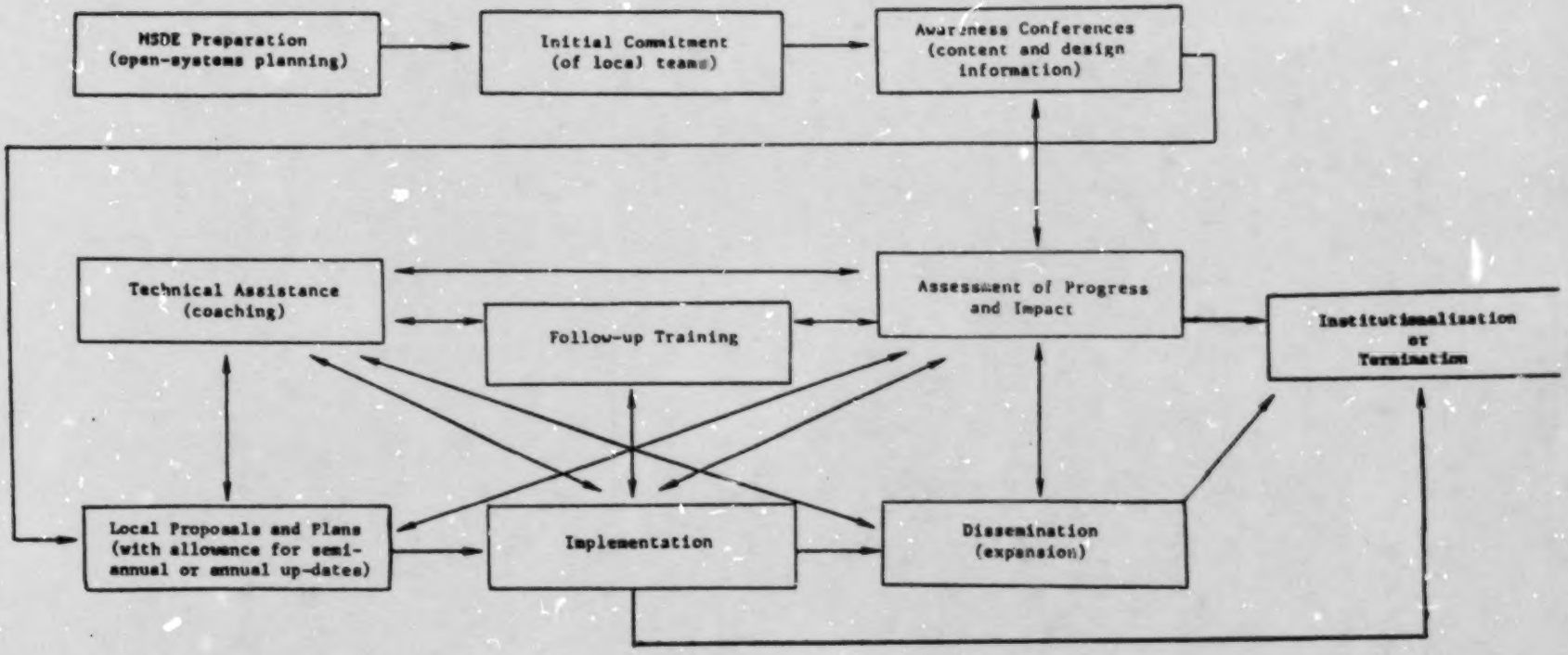

Figure 1. The SITIP Design: An Interactive Model for Program Improvement

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5. Implementation: Help LEAs implement selected models using their own strategies but involving representatives of all role groups.

6. Dissemination: Encourage use of the models in many schools, and share information about successes between LEAs.

7. Technical Assistance: Assign MSDE staff (across divisions) to assist LEAs in planning, implementation, and dissemination; to conduct follow-ups; and to facilitate networking. Build capacity; do not create dependency.

8. Training: Conduct an intensive three-day training session on each model for prospective implementers (teachers, school administrators, central office staff). Conduct annual or semi-annual follow-up training sessions (using participatory planning) to maintain quality implementation. Assist local staff in planning/conducting turnkey training.

9. Assessment of Progress and Impact (cyclical): Have a "third party evaluator" collect and analyze data systematically and use (feedback) information to make improvements and publicize successes.

10. Institutionalization/Termination: Integrate SITIP activities into local programs (independent of state support) or terminate, using locally relevant data to make decisions.*

The activities outlined above began in 1980. All 24 LEAs in the state were represented at awareness conferences. Nineteen LEAs submitted proposals for implementation through June 1983. For the 1982-84 school years, five "new" (second wave) LEAs decided to participate and for the 1983-84 year one "veteran" LEA did not request state funds. State department support (funding, provision of training and technical assistance to LEAs) continued through the 1983-84 school year. At that time it was hoped that LEAs would terminate or institutionalize their model programs, with each district taking responsibility for local needs, decisions, and actions. "Matching" grants were available after July 1984 only for second wave LEAs or for program expansion. A chronology of key activities is presented in Table 1. The cycle of planning, training, implementation, and evaluation is a consequence of the SITIP design.

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* This element of the design was added in August 1983 as LEAs began to provide matching funds to (reduced) state grants.

Table 1

Chronology of Key SIT[illegible] Activities

	1980			1981				1982				1983				1984			
	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec	March	June	Sept	Dec
1. MSDE preparation begun	x																		
2. Commitment given by LEA superintendents & developers re. awareness conferences		x																	
3. Awareness conferences held			I----	I															
4. Local proposals submitted to MSDE				I--I															
5. MSDE/LEA/developer planning of summer institutes				I---I															
6. MSDE technical assistance provided				I-															I
7. Four summer institutes held					x														
8. MSDE/LEA planning modified						x													
9. Implementation (by 19 LEAs)					I-														I
10. Follow-up training conducted							x	xxxxx											
11. Instructional Leadership conferences conducted									x				x				x		
12. Evaluation report on implementation distributed											x								
13. Planning and orientation for "new" LEAs										I---I									
14. Implementation (by 5 "new" LEAs)										I-									I
15. Follow-up training conducted										x x x		x	x						
16. Combined summer institute held														x					
17. Local plans finalized															x				
18. Evaluation report on impact distributed																x			
19. Follow-up training conducted																xx	xx		
20. MSDE/LEA planning reviewed																	I--I		
21. Local "ownership" for institutionalization or termination																	I-		I
22. Evaluation report on institutionalization distributed																			x

The Instructional Models

Four research-based instructional models (innovations) were selected by MSDE as potentially useful to all schools for improving instruction in all structured academic curricula. They were: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables.

- Active Teaching (AT) is a system of direct instruction developed by Thomas Good and Douglas Grouws at the University of Missouri. Originally designed for the teaching of mathematics, AT consists of the following components:

  1. Pre-lesson development -- concepts and skills from the previous night's homework are reviewed, homework is checked and collected, and students engage in mental exercises.

  2. Lesson development -- prerequisite skills and concepts are briefly reviewed, new concepts are introduced via teacher explanation and demonstration.

  3. Controlled practice.

  4. Independent, uninterrupted, individual, successful practice is provided in order to increase proficiency in the skills and concepts taught.

  5. Homework -- the homework that is assigned is related to the concepts developed that day.

  6. Review/maintenance -- weekly and end-of-unit reviews help to maintain skills and concepts taught.

- Mastery Learning (ML), developed by Benjamin Bloom (University of Chicago) and James Block (University of California), combines curriculum alignment and diagnostic/prescriptive instruction with a philosophy that all students can succeed. Essential components are:

  1. Developing a scope and sequence of objectives, broken down into prerequisite and component skills.

  2. Providing appropriate instruction aligned with the objectives to be mastered.

  3. Testing the student's progress in mastering the objectives through the use of a formative evaluation measure ("no fault" test).

  4. Providing students who have not achieved mastery with additional corrective work in the deficient areas specified by the formative tests, and providing students who have achieved mastery with enrichment activities to reinforce and supplement learning.

5. Testing final mastery of the objectives with a summative evaluation measure.

6. Recording student progress in terms of individual mastery of specific objectives. "Mastery" is usually defined as 80% of the students demonstrating success on at least 80% of the objectives in a given unit of instruction.

- Student Team Learning (STL) techniques use peer tutoring and team competition to facilitate student learning. Student Team-Achievement Divisions (STAD) and Teams-Games-Tournaments (TGT) were developed by Robert Slavin and staff at the Johns Hopkins University. Jigsaw was started at the University of California at Santa Cruz. The key factors of STL are peer interaction, cooperation, and competition. STAD is basically team learning; TGT is team learning plus competition by ability level; Jigsaw is team learning of specific elements of a program, with regrouping for peer teaching across elements.

- Teaching Variables (TV) was developed by David Helms and staff at Research for Better Schools (RBS). Two variables found to be strongly related to effectiveness of instruction and student achievement were identified: "content" and "time." The "content" variable encompasses two factors:

  1. Assessment of prior learning.

  2. Alignment of curriculum objectives and classroom instruction to the testing instrument.

  The "time" variable improvement cycle involves:

  1. Measuring student engaged time (SET) via classroom observation.

  2. Comparing SET and opportunity for improvement.

  3. Reviewing and selecting research-based improvement strategies.

  4. Implementing strategies.

  5. Using additional classroom observations to evaluate the effectiveness of the strategies in improving SET.

The innovations vary in complexity. Complexity was determined on four criteria:

- knowledge -- how much must be learned that is new?
- materials -- how much do classroom materials need to be redesigned or developed?
- methods -- how much change is required in the way things are done in the classroom? in the school?
- organization -- how much role change and administrative action are required?

Each innovation was assigned a rating on a scale from 1 to 5 (with 5 indicating high complexity) on each criterion, and a mean rating was derived. As designed, the innovations were rated in order of complexity as: Active Teaching (1.62), Student Team Learning (2.37), Mastery Learning (3.12), and Teaching Variables (3.75). (See Table 2.)

As implemented by some, Teaching Variables proved to be less complex than Mastery Learning since 60% of TV implementers used only the "time" variable. AT and STL, as implemented, were simple and classroom-based, requiring less support from school administrators and central office staff than ML or TV. ML and TV were both complex and required cross-hierarchical coordination for successful implementation.

Table 2

Complexity of the SITIP Innovations

Dimension	Models			
	AT	ML	STL	TV
Knowledge	2	3	3	5
Materials	2	4	4	3
Methods - in class	2 } 1.5	4 } 3.5	4 } 2.5	3 } 3
- in school	1 }	3 }	1 }	3 }
Organization	1	2	1	4
Total	6.5	12.5	9.5	15
Mean	1.62	3.12	2.37	3.75

Assigned ratings vary from a high of 5.00 to a low of 1.00.
AT = Active Teaching, ML = Mastery Learning,
STL = Student Team Learning, TV = Teaching Variables

Summary of Findings: December 1980 to June 1983

The following discussion is summarized from earlier SITIP reports that focused primarily on implementation and impact.

The nature of the innovation is one of many factors influencing implementation. Other influential factors include the choice of strategy,* the nature and extent of training and assistance, extent of local commitment, and the nature of involvement. In comparing innovations, the following should be kept in mind:

- Active Teaching. The strategies chosen required active involvement from all role groups. The innovation as implemented was simple and classroom-based. The scope of implementation was larger than for any other model (33 schools, 472 teachers in June 1982; 73 schools, 581 teachers by June 1983).

- Mastery Learning. The strategies chosen were school-based. The innovation as implemented was complex and suggested a need for cross-hierarchical coordination. The scope of implementation was moderate (81 teachers in six schools in June 1982; 202 teachers in 13 schools by June 1983).

- Student Team Learning. The strategies chosen were primarily teacher-oriented or classroom-based with initial involvement or light monitoring by school administrators and central office staff. The innovation as implemented was fairly simple and classroom-based. The scope of implementation was moderate (100+ teachers in 20+ schools in June 1982; 113 teachers in 42 schools by June 1983).

- Teaching Variables. The strategies chosen were primarily school-based with active involvement by central office staff in three of the five LEAs. The innovation as implemented was moderately complex suggesting a need for interaction between observers and teachers observed. The scope of implementation was low (50+ teachers in six schools in June 1982; 98 teachers in 13 schools by June 1983).

Regardless of the model adopted, it was found that certain roles and responsibilities were effective in facilitating instructional improvement.

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* Strategies of implementation were designed by LEAs and included: a light-house school approach, capacity building through staff development, a pilot school to district design, and district-wide implementation.

- SEA staff initiate, encourage voluntary participation, build and maintain commitment, and provide (research-based) assistance as resource coordinators.

- Central office staff engage in cross-hierarchical communication, linking schools and LEA to the SEA, and act as resource coordinators by providing various support services. If implementation is in more than one school, central office staff function as "project directors."

- School-based administrators ensure that teachers' concerns are addressed (logistical and affective), and function as supportive facilitators or managers, sometimes with "project director" status if a "lighthouse school" strategy is used.

- Teachers carry out classroom implementation tasks. Also, teacher representatives support others by "turnkey training," especially for capacity building sites, and, when implementation is single-school focused, teachers can function as "project directors" if administrators (school or central office) do not take on that responsibility.

Other findings of this study, relevant to role group responsibilities in implementation, suggest the following conclusions.

- Initial staff interest or commitment to implement a new program or practice can be built if: (1) the superintendent permits staff to look at new ideas with the intent to implement if appropriate, (2) the innovation and its presenter/developer have validity and credibility, and (3) staff believe that they do have choices and can influence decisions.

- Staff interest is the most important factor in selection of the innovation and in determination of elements of the implementation plan.

- Cross-hierarchical planning facilitates mutual understanding which helps to prevent problems during implementation (such as communication breakdowns, resentment, feelings of isolation).

- Representation of the various role groups in planning and subsequent decision-making builds understanding and commitment, ensures inclusion of role group perspectives, and strengthens organizational knowledge so that knowledge is not lost if reassignments are made, and new staff are not given one-sided briefings.

- The complexity of the innovation determines the amount of work to be done for a given school site.

- The implementation strategy determines how the work is shared among role groups and how the burdens shift among role groups over time.

- The strategy plus the scope of implementation (number of schools, teachers, curricular subjects, and grade levels; amount of time devoted to the innovation for each class or subject) determine how much work is to be done within a given LEA.

- The nature and extent of communication and decision-making determine productivity and effect.

- The organizational norms of the LEA determine communication and decision-making procedures.

- Changes in organizational norms are influenced by internal and external pressures which act virtually simultaneously, but not necessarily collaboratively.

- Regardless of the nature of the innovation, all role groups must carry out the following tasks, in order of investment: (1) interactive support (acknowledgement, shared knowledge, problem-solving, resource allocation); (2) learning/training (before and during implementation); (3) record-keeping; (4) materials identification or development; (5) evaluation; and (6) administration.

- Perceptions of interactive support reflect participants' assessment of each others' commitment. Judgments are based both on how much useful help was provided and on the visibility of the support (with lower ratings for low visibility).

- It is preferable for each role group to perceive high support from close role groups rather than distant ones. Therefore, visibility should be reduced with distance. [For instance, teachers should perceive principals as supportive. If there is a problem, a state technical assistant may help central office staff (who turnkey ideas to the principal) or the state technical assistant (TA) (with central office permission) may help the principal. However, the state TA does not provide support to the teachers when it should more appropriately come from the principal.]

- Representatives of all role groups need a thorough understanding of innovations to be adopted so that: (1) plans are realistic, (2) reassignments do not result in the organization's loss of knowledge, (3) interactive support can occur, (4) no one group is overburdened, and (5) there is a reasonable chance for institutionalization and dissemination beyond initial pilot sites.

- Impact in terms of student achievement was evident to some extent, although not formally expected for the first year of implementation. Results suggest (tentatively) that greatest impact was made by Mastery Learning, followed by Active Teaching. Student Team Learning appeared to influence student affect more than achievement. Teaching Variables data are inconclusive.

- People providing technical assistance (TA) are most effective when they are: (1) responsive to the needs of the implementers, (2) task

oriented and knowledgeable about local norms, the innovation, and processes of planned change, and (3) skillful in facilitating shared decision-making and in coordinating communication. Accomplishments of the TA team included: providing leadership for a statewide school improvement program while concurrently encouraging local ownership; maintaining communication within MSDE and among LEAs; developing networks and teaching/learning opportunities for local teams to share successes and build expertise; developing expertise among themselves and applying it in SITIP and in other areas; and increasing awareness of effective SITIP practices among researchers and educators outside Maryland. Impact relating specifically to assistance included: increased trust and openness in communication between LEAs and MSDE; increased effort by some LEAs to carry out their plans; better linkage or a clear common knowledge among hierarchical levels within LEAs; increased involvement by central office staff in some LEAs; changes in planning, decision-making, and/or communication (e.g., more involvement of teachers) in some LEAs.

- Major outcomes of planning activities within MSDE (other than the implementation of the plans) included: (1) a general knowledge of SITIP by most MSDE staff; (2) sufficient commitment or interest by senior and middle management to be willing to explore elements or knowledge bases of SITIP, and to continue (and expand) cooperative support for technical assistance; (3) application of SITIP-related information, strategies, or processes in various existing programs; and (4) increased knowledge and skills in instructional improvement and planned change by members of the TA team (which informally filtered back into other program areas).

- The various kinds of training events reinforced each other, and helped to establish a common knowledge base for all hierarchical levels. Participant evaluation of events, the subsequent local requests for on-site presentations and assistance, and the scope and fidelity of implementation, provided strong evidence of the value to participants of the SITIP-related training provided by MSDE.

- While processes of implementation based on the research on planned change were recommended for all models in all LEAs, and TAs encouraged local educators to attend to such principles as participatory decision-making, two-way communication, training and support, and appropriate investment of time and energy, those processes of implementation and principles were not always applied. When they were applied, implementation went sufficiently smoothly for energy to move gradually from establishing structures, relationships, and expectations toward actual classroom use. When there were arbitrary administrative decisions, top-down or incomplete communication, low support by central office staff, and insufficient time allocated for materials development or group planning by teachers, implementation problems occurred.

- Impact was made on student achievement by three models (AT, ML, STL), with the strongest evidence of success in mathematics and reading/language arts for AT and ML. (Standardized test results were reported

by four projects, and results of teacher-made tests were reported by eight projects.) Positive results were most apparent when AT or ML was used consistently over a period of time for a given subject and grade.

- Impact was made on student attitudes to some extent by all models. Data summarized for 12 projects (AT, ML, STL) indicated that SITIP students enjoyed the lessons, did not find them difficult, and wanted to succeed. Friction among students and their perceptions of favoritism and disorganization needed to be addressed at some sites. While teachers believed that STL students' self-esteem and willingness to work with others increased, student data for STL indicated no differences for that model in comparison to AT and ML.

- Impact was made on teachers' knowledge by the training provided in support of all models. Skills in new teaching/observation techniques increased through classroom practice and coaching. Positive attitudes about teaching were strengthened as teachers experienced success.

- Impact was made on a school (the faculty and how instructional matters were dealt with) through commitment and sharing among teachers (ML, STL, TV), and provision of support (ML) and recognition of success (STL) by school administrators (usually the principal). Staff interest in teaching/learning increased (AT, STL); there was more continuity across classes (AT); better management of instruction (TV); and closer monitoring of teaching (AT).

- Impact was made on school administrators' knowledge of all models through training, and they improved in instructional management (AT), strengthened their belief in traditional teaching (AT), and were more appreciative of teachers' capabilities (AT, ML) as implementation occurred in their schools.

- Impact was made on central office staffs' knowledge of all models through training, and, they improved in instructional management as they became involved in implementation (AT).

- At the system level, there was knowledge gain (STL), cross-hierarchical sharing and commitment (AT, ML), and policies enacted to release teachers to train others or coordinate activities (ML), and to implement the model district-wide for a given subject or grade level (AT).

- Concerns were stated and recommendations made by local SITIP participants at the end of the 1982-83 school year. For AT, the most critical issue was local perceptions of the fit of the model to specific grades, subjects, or students (as grouped). For ML, the most critical issue was cost-effectiveness in terms of time allocated for unit and test development, and the subsequent record-keeping, in relation to the perceived value of the model. For STL, the most critical issue was cost-effectiveness in terms of teachers' investment in relation to impact (including discipline) on various kinds of students. For TV, the most critical issue was the perceptions --

fear, apathy, resentment (primarily of teachers) -- about local implementation decisions and about the model design. While those issues suggest negative impact in some sites, it should be noted that they were not pervasive and did not out-weigh the positive impacts reported earlier.

- Designs or plans for instructional improvement are most likely to be successful if: (1) participation (of organizations) is voluntary, (2) communication is multi-dimensional, (3) planning is interactive with training, (4) training and technical assistance are provided during implementation, (5) "lip service compliance" is not accepted as implementation, (6) adjustments of scope are considered legitimate if they relate to resources available, and (7) each participant has some degree of choice about his or her involvement (nature or extent) in the effort. These elements were present in SITIP.

III. EVALUATION OVERVIEW

The evaluation was designed to address two "levels:" (1) specific events or stages of activity, and (2) the overall SITIP program as a viable strategy for statewide school improvement. Also, MSDE required the findings to be reported on an on-going basis so that data-based decisions could be made to bring about program improvements. During the 1980-1981 and 1981-1982 school years, an evaluation of the overall implementation of SITIP was conducted for MSDE by Research for Better Schools (RBS). During the 1982-1983 school year, RBS continued to take primary responsibility for evaluation, but LEAs assumed additional responsibilities, and "impact" data received greater attention. During the 1983-84 school year implementation and impact continued to be examined, but the primary focus shifted to institutionalization.

This chapter summarizes the questions addressed by the evaluation during the 1983-84 school year, and the responsibilities and data sources, measures and methods, and data analysis and reporting procedures employed in the study.

Questions Addressed

The study addressed five areas: institutionalization, impact, implementation, dissemination, and technical assistance.

1. What is the nature and extent of institutionalization:

    1.1 At the state level?
    1.2 Across LEAs for a given model?
    1.3 Within a local system?
    1.4 Within a school?

2. What is the nature and extent of impact:

    2.1 On educators, schools, and LEAs?
    2.2 On student achievement, behavior, and attitudes?

3. What is the nature and extent of implementation:

   3.1 Within a local system?
   3.2 Across LEAs implementing a given model?

4. What is the nature and extent of dissemination:

   4.1 Within a local system?
   4.2 Between LEAs?
   4.3 Outside of Maryland?

5. What is the nature and extent of technical assistance provided by MSDE in terms of:

   5.1 Implementation?
   5.2 Dissemination?
   5.3 Institutionalization?
   5.4 Evaluation ?

Responsibilities and Data Sources

RBS worked with MSDE TAs to develop an overall design and written guidelines for evaluation. The guidelines summarized the design, listed role group and individual responsibilities, included a checklist planning sheet which indicated mandates (e.g., completion by local implementers of specific questionnaires), and described measures and methods. RBS and MSDE staff reviewed the guidelines with project teams and each team completed a planning sheet agreeing to a coordinated evaluation effort.*

In general, RBS was responsible for design, development, analysis, and reporting. MSDE TAs were responsible for coordination, distribution and collection of materials (e.g., questionnaires), and assistance to LEAs in following the guidelines (e.g., selection and use of student assessment measures). LEA coordinators carried out tasks similar to those of TAs, but each in his/her own district.

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* There are 24 LEAs in Maryland, all of which participated in SITIP. Since some LEAs adopted more than one instructional model, there were 29 projects.

Information -- materials, interviews, survey responses -- was provided by: (1) the seven MSDE TAs and the SEA assistant deputy superintendent; (2) LEA central office staff directly involved in SITIP (usually one to three people for each of 24 LEAs); (3) school-based administrators (up to 3 per project); and (4) teachers (up to 15 per project). On-site visit information was provided by additional educators. Also, large numbers of participants of state-sponsored training events provided information either directly (responding to questionnaires) or indirectly (observed by RBS). In some cases student data were summarized by local educators and submitted to RBS.

Measures and Methods of Data Collection

Five general methods of data collection were used: observations, interviews, questionnaires, document analyses, and measures of student attitudes and achievement.

Observations

The evaluation design included observations by RBS staff of state-sponsored training events, MSDE technical assistance meetings, and site visits to participating school districts.

Four MSDE training events were observed by RBS staff. These events consisted of one follow-up for ML and two for STL; a three-day training institute in all models for 200 participants in July 1983; and a state-wide conference attended by 500 educators in May 1984 at which 16 projects made presentations.*

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* RBS staff were assisted in observing the May conference by MSDE-supported staff involved in another project.

Six technical assistance meetings were observed to determine the nature and extent of assistance, the operating opportunities, and the constraints. Eighteen site visits were made, two each to nine project sites. Site visits included classroom observations, participant/observation of local meetings, and interviews.

In all cases comprehensive notes were taken, objectively describing what occurred and indicating the elapsed time.

Interviews

The MSDE TAs were interviewed individually on questions relating to their role in SITIP, perceived successes, and recommended improvements.

Informal interviews with local implementers were conducted during site visits and at training events.

Questionnaires

Three questionnaires were used: (1) Key Contact Questionnaire, (2) Follow-Up Feedback Form, and (3) General Survey. Each one is described below.

Key Contact Questionnaire. A key contact person was designated in each LEA for each model implemented. This person was required to complete two versions of the questionnaire: a "pre" version in September 1983 and a "post" version the following May. Items on the questionnaire related to level of implementation (e.g., numbers of schools, grades, teachers, classes, and students involved), LEA objectives for the SITIP project, and activities relating to those objectives.

Follow-Up Feedback Form. LEA participants of MSDE training events were required to complete feedback forms. Items on the forms related to such

features as clarity of objectives, utility of the activities, quality of support and assistance from MSDE staff, and future needs.

General Survey. A general survey was developed by RBS and completed by up to 20 respondents in each project from three role groups (i.e., central office, school administrators, teachers). Survey items related to implementation, perceived impact, dissemination, institutionalization, and technical assistance.

Document Analyses

All materials developed by MSDE for planning, training, and communication about SITIP were reviewed by RBS. Materials (including video tapes) developed by all LEAs used at follow-up meetings and state conferences were also reviewed. Some LEAs also provided copies of classroom materials, training packages, and evaluation reports.

Student Assessment

While the General Survey included questions relating to perceived program impact on students in terms of attitude, behavior, and achievement, local systems were also encouraged to collect data directly from students to determine their attitudes and to assess achievement. Data summaries could then be submitted to RBS as evidence supporting self-report claims.

Student attitude measures. LEAs could elect to use a given questionnaire or one of two surveys to assess attitudes. The questionnaire (elementary and secondary versions) measured students' enjoyment, interest, and perceived learning, on a five point scale for seven simple items. The surveys were more complex than the questionnaire. The Learning Environment Inventory (secondary level) had fifteen scales measuring the following areas: competitiveness, satisfaction, difficulty, friction, disorganization, apathy, favoritism, environment, cohesiveness, speed, goal direction, cliqueness, diversity,

formality, and democratic. All but the last three scales relate to one or more models. The My Class Inventory (elementary level) measured the first four areas mentioned above. Copies of the measures and scoring guides were made available to LEAs by the TAs. Participants in the Mastery Learning Follow-up Workshop also attended a one-hour training session by RBS.

Achievement measures. LEAs were encouraged by MSDE to assess student achievement. Guidelines stated:

> Achievement may be measured by the CAT or other norm-referenced tests, or by criterion-referenced measures. While it is theoretically desirable to pretest and posttest students comparing results of SITIP students with similar populations in "regular" classes, this traditional design is not always possible. Alternatives include: (1) long term trend analysis comparing "posttest only" results with those that might be commonly expected, or (2) pretesting and posttesting SITIP students using criterion referenced tests. Whichever method is used, it should be understood that "claims of program success" or "objective value" of SITIP should be made with caution.

Specific procedures were developed for use with various kinds of measures: California Achievement Test, other norm-referenced tests, or criterion referenced tests developed by the LEA or classroom teachers.

Analysis and Reporting

Data were analyzed for each question by model, by project, by LEA, and by role group. Correlational analysis were used to determine relationships among the variables: instructional gain, role group support, fidelity of implementation, and institutionalization at the system and school levels. Differences between the models, the strategies, and school types (elementary vs. secondary) for each variable were examined using analysis of variance.

Data were analyzed as soon as possible after collection. Summaries were prepared and oral reports were made to the MSDE team about once a month and in writing for formal events. Turn around time for written reports of specific

"critical events" was usually seven to ten days. This system of on-going analysis and reporting helped the MSDE team to make data-based decisions with regard to planned interventions and program improvements.

In the fall of 1983, project coordinators received case studies and report sections discussing findings relevant to the model they were implementing. The executive summary of the report for the school year 1982-83 was distributed to local superintendents in January 1984. MSDE specified that local implementers should attend to report recommendations and make data-based decisions to terminate or institutionalize by June 1984.

IV. STATE INITIATIVES AND ASSISTANCE

In support of local implementation of four models of instructional improvement, the Maryland State Department of Education (MSDE) initiated activities in three areas: planning, training, and technical assistance. In order to carry out those activities effectively, organizational structures and mechanisms were established which built upon previous efforts. This chapter presents general background information for four consecutive school years, describes the organizational structures used for SITIP, reviews events for the three areas of activity, and presents a summary and related conclusions.

General Background

The first year focused on planning and orientation. Local implementation began in the fall of 1981. Between mid 1982 and mid 1984 (the last two school years of this study) additional LEAs and schools became involved, impact was assessed, and indicators of institutionalization were examined. The following discussion reviews relevant activities for each year.

Year 1: 1980-81

During the 1980-81 school year, teams of educators attended orientation conferences conducted by the researchers/developers of the models. Then 19 LEAs submitted plans to implement one or more of those models, received grants (up to $5,000 per LEA per year), and participated in further training and planning activities sponsored by MSDE.

Year 2: 1981-82

During the 1981-82 school year, nearly 700 teachers in grades K-12 used one or more of the models in mathematics, reading/language arts, science, social studies, or other academic areas. In each of the 19 LEAs, SITIP

teams were formed, including teachers, school-based administrators, and central office staff. These teams were assisted by MSDE technical assistants (TAs) -- two people per model -- who visited local sites, facilitated problem-solving and networking, and conducted one or two "follow-up" training events attended by all teams implementing a given model. For two models (STL and TV) the respective developers participated in training.

In addition to conducting activities relating to a specific model, MSDE also sponsored an Instructional Leadership Conference in May 1982 focusing on quality instruction (addressed by Barak Rosenshine) and staff development (addressed by Bob Bush and Bruce Joyce). The conference was attended by about 500 local educators, including SITIP team representatives. (MSDE staff attended a separate conference conducted by the same presenters.)

To further reinforce the instructional improvement theme, MSDE commissioned Research for Better Schools (RBS) to write a paper synthesizing research on instructional improvement and planned change.* That paper was subsequently used as a knowledge base for several MSDE-sponsored training events in the 1982-83 school year.

Year 3: 1982-83

During the summer of 1982, the five LEAs that initially had not participated in SITIP became part of the program and received appropriate assistance and funds from MSDE. Training was conducted by MSDE TAs, with some help from STL and TV developers. Funding, assistance, and model-specific follow-up training events continued for all LEAs throughout the year.

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* Roberts, J.M.E., & Smith, S. Instructional improvement: A system-wide approach.

During the 1982-83 school year, nearly 1,000 teachers in 140 schools (about 11% of the schools in the state) were involved in SITIP. Sixty-five percent of those schools were elementary, 34% secondary. Attention focused on program impact, which was greatest for students in AT and ML.

In early fall 1982, an RBS evaluation report covering the 18 months beginning December 1980 was released, and the executive summary and sections relating to local implementation of specific models were distributed and discussed by key interest groups. Some findings influenced subsequent activities.

The spring 1983 Instructional Leadership Conference included presentations made by each of the 19 LEAs first involved in SITIP, and focused on teacher effectiveness (Madeline Hunter) and planned change (Karen Louis). Those two presenters also addressed MSDE staff and college faculty at separate conferences. The RBS synthesis paper was used as advance reading for the LEA conference, and was the basis of several other presentations and training events to state and local administrative and supervisory staff.

By June 1983, 23 LEAs were committed to a third year of SITIP implementation, all with matching state funds, and all planning expansion.*

Year 4: 1983-84

During the 1983-84 school year, about 2,700 teachers in over 180 schools used one or more of the SITIP models. Attention focused on institutionalization, with the expectation that projects would make data-based decisions to terminate, institutionalize, or expand.

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* One LEA did not plan expansion and did not request MSDE funds for the 1983-84 school year. Interested teachers/schools could continue to implement the SITIP model on their own.

In July, MSDE sponsored a three day Summer Institute to train new implementers in each of the models and to assist local team planning. During the year other follow-up training activities were also conducted.

In the fall, RBS evaluation reports on local implementation were distributed and reviewed with project coordinators. The full report was released in January 1984, and the findings were reviewed with key interest groups.

The spring 1984 Instructional Leadership Conference included presentations by 16 LEAs and focused on "Elementary vs. Secondary School Effectiveness" (Jane Stallings) and "What's Good About American Education" (Harold Hodgkinson). Stallings also addressed MSDE staff at a separate conference.

The SITIP design calls for flexible state leadership, and involvement of all role groups in planning, training, and implementation. MSDE sponsors planning and training events, carries out technical assistance and evaluation, and facilitates local implementation and dissemination. Local involvement is voluntary, but lip service compliance is not accepted as implementation. Local investment (time, money, and commitment) is high and is influenced by the nature of the design, the quality of technical assistance and training, and the perceived value of the models implemented. In general, as SITIP gained visibility within the state, central office staff (especially superintendents and assistant superintendents) gave more attention to the program and to the relevant research bases.

Organizational Structures

The organizational structures used for SITIP evolved over time to ensure appropriate participation of role groups and hierarchical levels. Multiple channels of communication were used, with careful attention to sending consistent, clear, timely messages, and to maintaining personal contacts so

that local educators could readily exchange information with MSDE. While appropriate attention was paid to lines of authority, cross-level or cross-division mechanisms were also used or developed to facilitate coordination. This section outlines the structures and mechanisms which did evolve. It refers to MSDE's internal decision-making, the placement and responsibilities of MSDE staff assigned as technical assistants, and MSDE/LEA communication.

SITIP was initially designed by staff of two departmental units of MSDE, building on needs and successes of existing programs relating to professional development academies, technical assistance, Project Basic (the state competency-based education program), and the implementation of research-based processes and models. Once approved by the state superintendent, SITIP was reviewed by the Instructional Coordinating Council (ICC) -- the state superintendent, assistant deputy superintendent, and MSDE assistant superintendents each responsible for a particular division/department. ICC members agreed that SITIP would become a jointly-sponsored program, coordinated by the assistant deputy superintendent (ADS), and supported by the person time of selected division staff with field responsibilities. These staff became the SITIP technical assistants (TAs), each "expected" to spend about two days a month on the program. They continued their usual tasks, and, for SITIP, reported to the ADS.

The SITIP TA team was chaired by the ADS and included eight TAs (two per model) drawn from the Divisions of Instruction; Certification and Accreditation; Instructional Television; Library Services; Compensatory, Urban and Supplementary Programs; and the Office of Project Basic. The team met monthly to review progress, assist each other or share materials, and to plan forthcoming activities. Individual members took on specific tasks most closely relating to their "regular" work. Most general administrative work (e.g.,

coordinating local plans and allocating funds) was undertaken by the two TAs who routinely reported to the ADS. Each partnership was free to determine what technical assistance should be offered and how work should be shared. Members were expected to network about SITIP within their own divisions, spreading successful concepts and building a general knowledge base among MSDE staff. This communication was not as strong as was initially planned.

Communication between MSDE and the 24 LEAs initially involved the ADS and LEA superintendents, and that channel continued to be used for formal information exchange. Subsequently, the local council of assistant superintendents (that meets monthly, chaired by the ADS) became a communication channel. The SITIP model required involvement of cross-hierarchical local teams, and once they were established MSDE TAs could contact specific teachers, school-based administrators, and central office staff. Usually one of the latter group (or, more rarely, a school administrator) was designated as the local project coordinator and became the key contact for LEA/MSDE SITIP communication. In a few cases, a project coordinator was so little involved in SITIP that someone else (usually school-based) became the key contact, especially to review implementation progress or needs. Important information (e.g., about the annual Instructional Leadership Conferences) or materials (e.g., evaluation summaries) were shared in several ways through several channels (e.g., councils of superintendents and assistant superintendents, mailings, TA local on-site visits, follow-up training events), with senior administrators receiving information first, but other channels used to ensure that "desk-work blocks" did not delay or prevent communication. (Even so, such blocks did occur at times, indicating a need for TAs to encourage better communication within some LEAS.)

Planning*

SITIP policies and activities were planned by the TA team, with members taking into account local needs and interests. Plans were reviewed, revised if necessary, and approved by the ICC. Operational specifics were negotiated with LEA superintendents and SITIP teams. In general, the SITIP TA team took primary responsibility for leadership and administration of the program, with the ADS responsible to the ICC for maintaining quality and cost-effectiveness.

Planning was flexible, interactive, on-going, and based on an open-systems approach. Within MSDE and between MSDE and the LEAs, efforts were made to coordinate activities and to strengthen or integrate existing programs with SITIP (or SITIP knowledge bases on instruction and planned change). Planning was timely, made good use of resources and available expertise, and invited local participation by role groups in such ways as to result in high commitment to the program and real (not lip-service) implementation in almost all sites. The combination of visible success and voluntary participation also facilitated planning.

Training

MSDE-sponsored training activities related to SITIP during the 1983-84 year included: (1) a Summer Institute, (2) an Instructional Leadership Conference, and (3) Follow-up Workshops. Each activity is described below.

Summer Institute

In July 1983, approximately 200 participants from 23 LEAs attended a three-day training session.

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* For a complete discussion of planning, see Instructional Improvement in Maryland: Impact on Educators and Students.

On the first day, a general overview of SITIP was presented, with reference to events to date, the research influencing the instructional models, and the processes used. SITIP findings and factors influencing institutionalization were reviewed. (Presenters included the ADS, a TA, and an RBS consultant.)

On the second day, participants formed five groups. Four consisted of local educators new to SITIP who received training in implementing a given model. The fifth group consisted of "experienced" SITIP participants who attended a session on the management of change. The model-specific sessions were conducted by MSDE TAs with assistance from experienced LEA staff (and the developer in the case of STL). The "change" session was conducted by the RBS consultant, with assistance from two SITIP project coordinators.

Following model-specific progress reports from local projects, LEA teams spent the third morning planning 1983-84 implementation.

Evaluation forms were returned by 129 local educators (79 teachers, 35 school-based administrators, and 15 central office staff), of whom about 53% were "new" to SITIP.

Mean ratings of the institute overall are shown in Table 3. "Old" participants had a much better understanding of institute objectives ahead of time than did "new" participants. The strongest outcome for "old" participants was follow-up planning, and for "new" participants was overall awareness of SITIP activities. Negative participant comments (28) related to information overload and the need for more "how to" guidance, while positive comments (48) related to organization, quality of presentations, and participant interaction.

The session on management of change, intended for "old" participants, was also attended by 13 "new" participants. Mean ratings are shown in Table 4.

Table 3
Mean Ratings of Summer Institute
(Summer 1983)

Item / Respondents	"Old" Participants	"New" Participants	Total
Prior to attending, I understood the purpose and objectives of this institute.	4.14	3.24	3.65
The purpose and objectives were clearly presented at this institute.	4.24	4.32	4.28
As a result of this institute I have:			
--increased my awareness of overall SITIP activities and outcomes.	3.98	4.33	4.17
--increased my awareness of research on planned change and its relationship to the SITIP design and outcomes.	4.05	3.86	3.95
--increased my awareness of LEA activities and plans related to the selected topic.	4.12	4.21	4.17
--become involved in planning for 1983-84 follow-up activities for the selected topic.	4.33	4.09	4.20

Note: "Old" participants have been implementing SITIP topic(s) for at least one year.
"New" participants have not yet implemented SITIP topic(s).

Responses range from 1.00 (strongly disagree) to 5.00 (strongly agree).

Table 4

Mean Ratings of Management of Change Session
(Summer 1983)

Item	Respondents		
	Old N=37	New N=13	Total N=50
As a result of this session I have:			
--increased my awareness of my individual problem solving style.	4.19	3.54	4.02
--increased my awareness of how my understanding of group dynamics can help with SITIP implementation.	3.89	3.46	3.78
--increased my awareness of open systems planning for SITIP.	3.75	3.31	3.63
--increased my ability to use knowledge of individual style, group interaction, and systems planning for the management of change (especially SITIP).	3.94	3.46	3.82

Note: Responses range from 1.00 (strongly disagree) to 5.00 (strongly agree).

"Old" participants benefited more than "new" ones. Negative comments (five) indicated that participants found the activity too general, but positive comments (12) stated that the presentation was helpful and practical.

Participant ratings for the model-specific sessions are presented in Table 5, and are least positive for AT, most positive for STL. Of the 95 participants, 13 made negative comments indicating that there was insufficient training in ML and TV, and some repetitive activities for all models. Positive comments were made by 50 respondents, praising the enthusiasm of the AT presenters, the use of group dynamics techniques in the ML sessions, the simulations conducted by the STL developer, and the training in coding for TV.

Participants also stated their anticipated needs for the 1983-84 school year (see Table 6). The greatest area of need was for additional learning activities (through intercounty visits, state follow-up conferences, or local inservice for other teachers). These needs were to be addressed by MSDE TAs.

Overall, the institute was well-organized, informative, and provided participants with an opportunity to interact with each other.

Instructional Leadership Conference*

In May 1984, approximately 500 participants attended the fourth annual Instructional Leadership Conference.** Most participants were local educators. The audience also included MSDE staff, state and local board members, educators from private schools, and representatives from institutes of higher education (IHE). Topics and presenters included:

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* In addition to the major conference designed primarily for local educators, another was held the following day for MSDE staff. The second conference consisted of a presentation by Jane Stallings and opportunities for SEA staff to interact with her.

** Previous conferences designed to improve instruction, teacher effectiveness, and planned change were held in 1981 (featuring Bloom, Good, Slavin, and Helms), in 1982 (featuring Rosenshine, Bush, and Joyce), and in 1983 (featuring Louis and Hunter).

Table 5

Mean Ratings of Model Specific Sessions
(Summer 1983)

Item	Model Ratings				
	AT N=21	ML N=28	STL N=33	TV N=13	Overall N=95
As a result of the training:					
--I have increased the knowledge and skills I need to implement the model.	3.81	4.10	4.52	4.46	4.23
--I feel more confident and enthusiastic about my involvement.	3.75	4.14	4.36	4.38	4.16
--I feel as if I belong to the SITIP "team."	3.80	4.00	4.41	4.23	4.13

Note: Responses range from 1.00 (strongly disagree) to 5.00 (strongly agree).

Table 6

Needs of Institute Participants Implementing Each Model
(Summer 1983)

Needs	AT N=26	ML N=26	STL N=37	TV N=13	Overall N=103
Continue general support and assistance	3	3	-	-	6
Have follow-up sessions	1	3	4	1	9
Help conduct LEA inservice	5	3	4	3	15
Arrange Intercounty visits	6	3	8	1	18
Provide model specific "information" or materials	1	7	5	2	15
Help observe/critique classroom implementation	2	-	-	-	2
Provide evaluation tools/techniques	3	1	-	-	4
Provide RBS reports-feedback	-	1	-	-	1
Arrange for (or fund) teacher release time	1	2	6	2	11
Other	2	-	-	4	3
Not sure yet	2	3	10	-	19

- Similarities and differences in effective elementary and secondary schools -- Jane Stallings, one hour, all participants
- Communicating what's good about American education -- Harold Hodgkinson, one hour, all participants
- Role group responsibilities and curriculum subjects addressed in successful school improvement projects -- LEA teams and RBS staff, nine concurrent sessions of 45 minutes
- Factors facilitating expansion and institutionalization of school improvement projects -- LEA teams and RBS staff, nine concurrent sessions of 45 minutes.

The selected topics, involvement of researchers, participation by cross-hierarchical local teams (including LEA superintendents), and the overall "message" of encouragement to link research and practice, all reflected the SITIP philosophy -- familiar to SITIP implementers, but not necessarily understood by non-SITIP participants.

The two keynote speakers referred to results of major research projects, Stallings drawing primarily on classroom effectiveness studies, and Hodgkinson referring to Headstart and Follow-through studies and demographic data. Stallings was teacher-centered, while Hodgkinson had a broader perspective. In addition to those two presentations -- one first thing in the morning, the other immediately after lunch -- there were two rounds of small group concurrent sessions. In each round, one session was conducted by RBS staff who reviewed findings of the SITIP study. Also, LEAs in each round made presentations describing particular aspects of their implementation of SITIP models. (LEAs were selected based on their relative success in a topical area, as for instance, effective use of cross-hierarchical teams, or quality development of curriculum units.) Most small group participants received copies of relevant handouts.

Completed evaluation forms were returned by 230 participants (71% LEA, 15% MSDE, 6% private/parochial schools, and 3% IHE). Forty eight percent of the participants had no prior involvement with SITIP.

Participant ratings of keynote and small group presentations and of the overall conference are presented in Tables 7, 8, 9. While both Stallings and Hodgkinson received better than average ratings, Stallings was less popular, probably because she presented information already known to SITIP participants and she was difficult to see and hear. By comparison, Hodgkinson had an enthusiastic, energetic style and could be clearly heard and seen.

Responses to the concurrent sessions were grouped according to the focus of the presentation*. In both rounds RBS' presentations were the least popular (possibly because of the research focus). Overall, the expansion presentations were most popular. All small group ratings were above average.

Overall conference ratings were good. Negative comments (26), of which 54% were from SITIP implementers, indicated that SITIP implementers did not like the facilitators or were looking for something new, and non-SITIP implementers were disappointed because their needs were not addressed (e.g., specific information on SITIP models, advance reading materials, more discussion time, non-research presenters). Positive comments (16), of which 56% were from SITIP implementers, were simply generally appreciative.

While the conference was a success, there was a problem caused by audience diversity in relative sophistication of knowledge on research and its application for classroom effectiveness. Results suggested that if a fifth

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* In Round 1, elementary programs were discussed by Dorchester, Montgomery, and Wicomico; secondary programs by Anne Arundel, Calvert, Carroll, Queen Anne's, and St. Mary's; general role group responsibilities by RBS. In Round 2, program expansion was discussed by Allegany, Cecil, Garrett, and Howard; institutionalization by Charles, Somerset, and Worcester; both dimensions by Baltimore County and by RBS.

Table 7

Mean Ratings of the Keynote Presentations (May 1984)

Item \ Rating	Stallings	Hodgkinson	Total
Relevancy of objectives	3.73	4.68	4.17
Accomplishment of objectives	3.44	4.68	4.02
Overall quality of the presentation	3.36	4.76	4.01
Total	3.51	4.71	4.07

Respondents rated the presentations on a scale from 1.00 (poor) to 5.00 (excellent).

Table 8

Mean Ratings of Small-Group Presentations (May 1984)

Item	Round 1				Round 2				
	Elementary	Secondary	RBS	Total	Expansion	Institutionalization	RBS	Baltimore County	Total
Relevancy of objectives	4.05	3.99	3.24	3.91	4.23	4.13	3.73	3.91	4.08
Accomplishment of objectives	4.02	3.97	3.29	3.90	4.19	4.08	3.47	3.87	4.02
Overall quality of the presentation	4.01	3.85	3.25	3.83	4.19	4.08	3.47	3.87	4.02
Total	4.03	3.94	3.25	3.88	4.20	4.10	3.56	3.88	4.04

Respondents rated the presentations on a scale from 1.00 (poor) to 5.00 (excellent)

Table 9

Mean Ratings of the Overall Conference (May 1984)

Item	Rating
Conference design (format, use of time, range of activities)	4.12
Conference facilities	4.47
overall quality of conference	4.10
Value in terms of use of participants' time	3.93
Total	4.16

Respondents rated the conference on a scale from 1.00 (poor) to 5.00 (excellent).

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annual conference is held it should be designed to take into account participants' "prior learning," and their attitudes to the philosophy and concepts influencing SITIP-related activities.

Follow-Up Workshops

During the 1983-84 school year, four follow-up workshops were conducted by MSDE TAs. Each was designed for local educators implementing a given model, and included information, materials, and activities requested by local participants. Two workshops were conducted for STL, one for ML, and one for TV.*

Mastery Learning follow-up workshop. The ML follow-up workshop was conducted in Howard County in November 1983. It was attended by about 40 local educators representing all eight LEAs implementing the model, three MSDE staff, a local consultant, and an RBS participant observer. In preparation for the event, LEA teams completed a needs assessment survey and MSDE TAs developed the following agenda to address those needs: a review of current ML literature; and two rounds of concurrent sessions, with "Enrichment" and "Keeping the Project Alive" each conducted twice, and "Ability Grouping" and "Affective Assessment" each conducted once. Following lunch, participants reviewed the RBS evaluation report (using the STL Jigsaw model for peer and small group discussion), explored networking ideas, and attended a presentation on the use of microcomputers.

- The literature review was presented by an MSDE TA (CUSP). Articles were displayed, and "tagged" so that participants could request copies. This brief session was well received and many participants requested (and were given) copies of the articles.

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* There was no workshop for AT because the "lead" MSDE TA resigned in early 1984 and the other AT TA had too great a work load to conduct a follow-up workshop.

- "Keeping the Project Alive/Inservice" was presented twice by a former TA (C&A) who referred to such ideas as: three essentials -- selling the philosophy, defining the vocabulary, training in the program; change elements -- total involvement, group agenda, incentives, Bruce Joyce inservice model (with emphasis on coaching). During the session, participants talked in small groups, shared ideas with the large group, and questioned the presenter. The presenter suggested that it was important to make a purposeful decision to keep the project alive or to kill it, and to act on that decision. Both sessions were well attended and participants were actively engaged. They liked the Joyce model and seemed responsive to the presenter's style. However, much of the discussion seemed to focus on "what was wrong" rather than on what might be done to maintain or expand the program.

- The Enrichment session was conducted twice by the new TA (ITV) who used an overhead and transparencies, and had a few participants first focus on criteria for enrichment activities, then discuss ideas with each other, and engage in question and answer discussion with her. The small group discussions included reference to higher cognitive level learning, and participants shared classroom materials with each other. The session might have been better attended or more successful if purposeful attempts had been made to build support groups focusing on specific subject areas and grade levels, and if more sample materials had been available.

- The single session on Ability Grouping was conducted by the CUSP TA who presented a summary of relevant research, had participants work in small groups to determine desirable policy in light of that research and of local conditions, and then reconvened the whole group to review ideas. Projected transparencies included a list of the elements of hetergeneous vs. homogeneous grouping. A handout presented six key questions and responses. Small group discussion was animated and thoughtful. Following an exchange of ideas, the presenter stated that he would support heterogeneous grouping for the school, but regroup for basic skills subjects, being careful not to "track" a child permanently.

- The session on Affective Assessment was conducted once by the RBS participant-observer who reviewed the two measures used to measure student affect in the 1982-83 school year: The Learning Environment Inventory (LEI) and My Class Inventory (MCI). Participants reviewed the definitions of the scales, engaged in discussion of the implications, and were told how to score and analyze results if they used the measures. In small groups they discussed which scales they might use, and why, and then shared ideas with the total group. By the end of the session participants appeared to have a good understanding of the inventories and their use.

- In order to review the evaluation report on ML, participants worked in "expert" and "learning" groups, using the STL Jigsaw model. Everyone gained an overall understanding of the findings.

- To facilitate networking, participants in small groups responded to a list of seven questions to summarize collaborative activities in which they had been involved, and to suggest ideas for future networking and how best MSDE TAs might support their efforts. Some of those ideas were reviewed in the large group, and TAs promised to follow through on some of the ideas.

- Computer hardware and software were discussed by Jack Cole (a non-ML local educator), who provided handouts and review materials, described such programs as Visicalc, Wordstar, and Bank Street Writer, and suggested "do's and don't's" in materials selection and keeping up-to-date on educational technology. Participants were attentive during the presentation.

Participants' responses on feedback forms indicated that about 40% of them became involved in ML in the summer of 1983. Ratings of the overall workshop and MSDE support were good. In general, the morning's small group sessions were more popular than the afternoon sessions. The least popular session was "Enrichment," and the most popular "Keeping ML Alive." Responses -- during sessions and on feedback forms -- suggested that some participants had not been involved in the needs assessment survey, and/or had not been briefed about the nature and purpose of the follow-up. Needs and concerns expressed -- to be addressed by TAs during the school year -- related to time, inservice materials, and others kinds of support.

It was apparent that the two TAs spent a great deal of thought and energy on designing activities to meet stated needs. The follow-up seemed (on the whole) to be designed to provide participants with a sound knowledge base which they could apply in their LEAs. That purpose was achieved to some extent by all sessions, and to a large extent in such sessions as the one on ability grouping. In subsequent months, TAs responded to local needs during site visits and compiled descriptions of ML curriculum units and distributed them to local teams.

In the spring of 1984, the former TA (from C&A) conducted a national workshop with James Block (who conducted the original training in Maryland in

1981). Some LEAs sent representatives to that workshop (at a reduced cost) since no spring follow-up workshop was conducted.

Student Team Learning follow-up workshops. In preparation for the workshops, MSDE TAs were influenced by suggestions made by participants at previous training events and by their local observations. (Classroom visits were popular, and host schools were stimulated to do well.)

Two STL follow-up workshops were conducted, one in November 1983 in Calvert County, and one in May 1984 in Dorchester and Queen Anne's counties. Each was attended by two MSDE TAs, an RBS observer, and over 40 local educators. The second was also attended by an STL developer from John Hopkins. At both events, participants spent about half their time observing classroom use of STL models.

The first follow-up workshop included the following activities:

- Participants observed classrooms in two elementary schools and a middle school, seeing all three models (STAD, TGT, and Jigsaw) in various subjects and grade levels.
- Project reports were given by each LEA team: training and coaching within and between counties did occur, encouraging program expansion; and the "key teacher" system appeared to be gaining popularity.*
- A presentation on TV (time-on-task and content alignment) was given by two Calvert teachers, who described TV procedures and implementation activities in the county.

Responses to feedback forms indicated that about 38% of the participants had become involved in STL just since July. Overall, the workshop was rated as very good, with classroom visits and the TV presentation the most popular

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* Key teacher(s) are knowledgeable advocates of a given model. They train and coach other teachers, coordinate activities within a school, and act as communication liaisons with other schools. They function as instructional leaders, with logistical support from administrators. (See Teachers as Instructional Leaders for a more complete discussion.)

activities. Needs and concerns expressed related to time for curriculum development and training. When asked for suggestions for the spring follow-up workshop, participants urged: sharing curriculum materials designed for STL, classroom observations, and strategizing to improve or expand implementation.

The second workshop included the following activities:

- Participants observed classrooms in an elementary school in Dorchester County and a middle school in Queen Anne's, in various grades and subject areas, and all three STL models.
- Project reports were given by Dorchester and Queen Anne's staff.
- The Johns Hopkins representative encouraged participants to continue implementation after state funding ended, and the MSDE TA promised to compile and disseminate descriptions of STL curriculum and training models.

Responses on feedback forms were very positive, with the most popular activity being classroom observations. Needs and concerns expressed related to time for curriculum development and opportunity to share materials across LEAs.

Teaching Variables follow-up workshop. In preparation for the workshop, MSDE TAs were influenced by the findings of the RBS report (for the 1982-83 school year) and their observations during site visits. Both sources of information indicated tensions and misunderstandings between role groups in several counties, and lack of attention to the "content" variable.

The TV workshop was held in Talbot County in February 1984 and was attended by two MSDE TAs, an RBS observer, and 33 local educators representing all six implementing LEAs.* The morning activities focused on project progress reports, and the afternoon on school climate.

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* Two LEAs were each represented by only one role group: teachers from Frederick, and a central office supervisor from Kent.

- Progress reports indicated that: (1) all LEAs believed they had high student engagement rates (time-on-task), (2) two LEAs had teacher controlled programs, one was controlled by administrators, and the others were mixed, (3) one LEA implemented "content" as well as "time," and another integrated Active Teaching with TV. No LEA discussed strategizing for instructional improvement.

- The MSDE TA encouraged attention to the "content" variable, and emphasized the importance of support, cooperation, and trust among role groups.

- School climate was reviewed by Calvert educators who emphasized principal support in making sure that teachers enjoy working at the school, and team work to share expertise and responsibility.

- A series of activities involved participants in discussion of school climate: (1) in a "fishbowl" process, a cross-hierarchical group discussed impeding factors and helpful actions relating to school climate; (2) three small groups (teachers, school-based administrators, central office staff) discussed role group implications; and (3) LEA teams discussed county-specific problems and activities.

Responses to feedback forms were positive, with the afternoon small group sessions most popular. Needs expressed related to funding and MSDE support in addressing county specific needs.

Summary. Follow-up workshops did not focus on training specific to implementation of the models, but were designed to meet needs expressed by participants or identified through evaluation and on-site observation. ML participants gained knowledge in areas that could possibly improve classroom implementation (e.g., grouping, enrichment, evaluation) or program management (e.g., keeping ML alive, using computers). STL participants gained knowledge that could improve classroom implementation. TV participants gained knowledge that could improve program management. In all cases, there was opportunity for participants to learn about each other's projects and to share ideas. Independent networking was most encouraged for STL.

Participant ratings on four criteria are presented in Table 10. (A five point scale was used with 5 as most positive, 3 as average, and 1 as least positive.) Overall ratings were good, with STL ratings highest (possibly

Table 10

Mean Ratings of Follow-Up Workshops
(1983-84 School Year)

	Ratings by Model			
	ML N=36	STL N=37	TV N=28	Total N=101
Prior understanding of objectives	3.69	4.46	4.00	4.06
Activities met objectives	3.89	4.32	4.15	4.12
Activities met participant needs	3.68	4	4.04	3.90
Quality of MSDE support	4.00	4.43	4.07	4.18

Ratings are on a five point scale, where 5 is most positive.
STL ratings include both workshops.

reflecting the positive affect created at STL events), and ML lowest (possibly influenced by the more cognitive task orientation of ML events). The rating relating to needs being met was influenced in part by the fact that about 40% of participants were relatively new to SITIP while others had been involved since 1981. In general, follow-up workshops were designed to meet participant needs, included appropriate activities, and provided evidence of the TAs' professionalism and hard work (especially in ML, since that workshop was the most complex).

Over the three school years of SITIP implementation, 15 follow-up conferences/workshops were conducted by TAs (six in Year 1, five in Year 2, and four in Year 3). Content and participant activities for each model for each year are summarized in Table 11. The most common activities were presentations by LEAs about their projects, and model-specific presentations by various individuals and groups. Planning and planned change, addressed at the joint workshop (AT, STL, TV) and workshops for ML and STL, was the next most common topic. Other topics addressed by at least two groups of

Table 11

Teaching/Learning Activities of Follow-Up Workshops

Content and Process	Models Across the Three Years*										Joint AT, STL, TV
	AT**		ML			STL			TV**		
	1	2	1	2	3	1	2	3	1	3	2
Model-Specific											
Presentation											
-by developer						x	x	x	x		
-by out of state expert				x					x		
-by TA					x						
-by LEAs	x	x	x			x	x	x	x	x	x
Model-Related											
Other SITIP model			x					x			
Instructional research	x	x	x								
Implementation											
Planning/planned change				x			x				x
Assisting new sites				x							
Using computers					x						
Staff development				x	x						
Improving climate										x	
Networking/teaming				x	x						
Dissemination				x							
Student assessment & program evaluation	x			x	x						x
Participant Activities											
Large group	x	x	x	x	x	x	x	x	x	x	x
Small groups	x	x	x	x	x	x	x	x		x	x
Class observation						x	x	x			
Video presentation	x	x	x			x	x				

* Year 1=July 1981-June 1983; Year 2=July 1982-June 1983; Year 3=July 1983-June 1984.

** No model-specific workshops were conducted for AT in Year 3, or for TV in Year 2.

participants included other SITIP models, related instructional research, and evaluation. Both large and small group sessions were almost always conducted, and all models except TV used video tapes. Classroom observation occurred only for STL. The greatest emphasis on model specific training was for TV and STL; the greatest diversity was for ML; for AT, intensive exploration of instructional research was the major focus.

The original objective for the workshops was to support local implementation by increasing participants' expertise and confidence in the model(s) implemented. TAs also wanted to facilitate networking among LEAs, and to expand participants' knowledge of teaching/learning and dimensions of implementation. All three objectives were addressed for all models to some extent, with affective objectives best achieved by STL, and cognitive objectives best achieved by AT and ML. The client-responsive TA philosophy led to programs designed to meet expressed participant needs. Each TA (or dyad) was also influenced by personal preferences or biases (e.g., AT involvement of related research, ML emphasis on staff development).

One important area of need that could have been addressed more effectively (and might be in 1984-85) related to the "rich fidelity" of the models. That is, once teachers could implement a model for a given course or instructional unit, they might justly claim fidelity of implementation since they followed all the steps, yet the application might be relatively superficial. Training to improve "richness" might have included: (1) for AT, attention to piecing together component skills to build concepts, and attention to exemplary classroom management (e.g., by using videotapes made in some LEAs); (2) for ML, attention to alternative ways of teaching (rather than simply reteaching) for correctives; (3) for STL, attention to increasing teachers' understanding of small groups, increasing curriculum development

skills, and attention to integrating STL strategies and materials into district curriculum; and (4) for TV, attention to the "content" variable, and to strategizing for instructional improvement (rather than focusing on data collection and coding). For all models, workshops might have benefited from exploring ways in which one might reinforce another. (For instance, one LEA integrated AT and TV, and another used STL with some ML classes.) Finally, since workshops were attended by all role groups, often the same individuals over a two or three year period, activities should have built upon those facts (as did ML and -- during Year 3 -- TV).

Summary

Training was designed for cross-hierarchical teams, supported implementation of the SITIP models, included information and activities to reinforce content and process, took into account participant needs and interests, involved local teams as presenters, involved outside consultants as presenters (carefully coached by MSDE TAs), and was provided on the understanding that MSDE would provide assistance for LEAs wishing to follow ideas through with a larger number of local educators. The various kinds of training events reinforced each other. One recent problem was the discrepancy between "veteran" SITIP implementers and those who knew nothing about the program. The varying levels of knowledge were not always addressed to participants' satisfaction. This suggests that MSDE needs to explore alternative designs for future events.

Over the three years, seven statewide conferences were held, each attended by as many as 500 LEA participants. Related conferences were held for MSDE and IHE staff. Presenters considered to be national experts on instructional improvement, staff development, and planned change included:

David Berliner, James Block, Ben Bloom,* Robert Bush,* Barbara Clements, Michael Cohen, Tom Good,* David Helms et al.,* Harold Hodgkinson,* Madeline Hunter,* Bruce Joyce, Susan Loucks, Karen Louis,* Jane Roberts, Barak Rosenshine,* Robert Slavin et al.,* and Jane Stallings.* Also, 15 follow-up workshops were conducted, attended by as many as 45 local educators implementing a given model. Many on-site local training sessions were conducted by TAs, or by LEA coordinators with TA help.** Within schools and school systems trouble-shooting, program development, and coaching occurred, often with TA help of some kind. In Year 2, many interrelated training and knowledge building activities strongly reinforced the "message" of applying research for instructional improvement. This was clearly evident in Year 3 when some LEAs, regardless of the model adopted, addressed such general concepts as time-on-task and curriculum alignment, weaving them into training and coaching. Also, processes of planned change were strengthened, and central office staff became more aware of the impact of their involvement.

Overall, participant evaluation, process observers' notes, and subsequent local, state, and college action provided strong evidence of the value of the SITIP-related training sponsored by MSDE.

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* Only asterisked presenters addressed the total audience at a statewide conference. Others made presentations to MSDE, IHE, or smaller groups of SITIP implementers.

** Assistance and information exchange from developers was invited by TAs. STL developers responded, participated in many MSDE training events, volunteered information on new STL features, and, in turn, initiated requests for information. TV developers conducted training at three LEAs and at two follow-ups, and responded to TA requests for information. ML developers maintained frequent information exchange with TAs; some local implementers attended national ML training events. AT developers did not respond to LEA communication, and maintained minimal contact with TAs.

Technical Assistance

As stated previously, assistance to LEAs was provided by an eight-person team under the leadership of the ADS. The team carried out planning and training activities described earlier in this chapter and also worked in dyads to provide model-specific assistance to local implementers. This section describes the technical assistance (TA) system, the roles and responsibilities of the TAs, their impact, and the evolution of the role.

The TA System

The ADS provided leadership, allocated resources, and encouraged voluntary acceptance of tasks to be done. He chaired six meetings (usually lasting one or two hours) during the year, and coordinated activities across models. While he encouraged each TA dyad to be program-oriented and autonomous, he established expectations for major activities such as collection of local plans.

The TAs were drawn from various MSDE divisions. At the beginning of the school year there were: two administrators from Project Basic; two staff and a staff development consultant from the Certification and Accreditation Division (C&A); two instructional staff -- both mathematics specialists -- from the Division of Instruction; and three program specialists, one each from the Divisions of Library Development and Services (LDS), Compensatory, Urban and Supplementary Programs (CUSP), and Instructional Television (ITV).

Two TAs were assigned for each model. For the 1983-84 year the following changes occurred.

- For AT, the first TA (a mathematics specialist) stayed with the project until February 1984, when he resigned from MSDE. A second mathematics specialist joined the TA group in June 1983 and stayed with the project through 1984.

- For ML, the CUSP program specialist TA continued to take the lead. The staff development branch chief handed over responsibility to a new TA (in Instructional Television) in June 1983. In June 1984, the ITV TA handed over responsibility to a different ITV staff member.

- For STL, two TAs remained in their positions, one from LDS, and one from Project Basic. The former left SITIP in June 1984 and was not replaced. The latter maintained her leadership position throughout.

- For TV, both TAs continued with SITIP, proposing to share work equally, but finding that the administrator TA invested somewhat more effort than did the staff development TA.

The TA system was loosely-coupled, decentralized, program-oriented, and made up of highly-autonomous members held accountable for maintaining productive working relationships with LEAs. As long as local feedback to the ADS (e.g., from LEA assistant superintendents, ICC members, or RBS evaluators) was positive, each TA was free to use his/her own judgment.

When a TA needed assistance, he/she asked for and received help from another team member, including the ADS, and members were well aware of each others' strengths. Thus, the TA system provided support for its members, and coordinated administrative and logistical planning, communication, and resource allocation. While TAs worked as a team to plan Leadership Conferences and the 1983 Summer Institutes, and to ensure consistent and appropriate communication to LEAs about SITIP (e.g., planning and evaluation requirements, resource allocations), they did not work together for delivery of assistance to LEAs. In general, as a team and within each dyad, TAs made appropriate arrangements to get the work done, usually without interpersonal conflict and without things "falling through the cracks." Quality and quantity of work done were influenced by TA perceptions, by the level of effort invested in specific tasks, and by organizational arrangements within each dyad.

Roles and Responsibilities

Responsibilities, roles, rewards, challenges, and tasks, are discussed below for the team as a whole, with some references to model dyads.

Responsibilities. While all TAs agreed that their responsibility in the third year of implementation was to help local educators assume primary responsibility for the future of their projects, each dyad defined that responsibility slightly differently.

Roles. One TA believed the LEAs did not need MSDE assistance during the third year of implementation. The remaining TAs believed that they served a useful purpose and that the role included: coordinating networking among LEAs using the same model; visiting the various sites to acknowledge successful use and to help plan and problem solve; maintaining interest among "veterans;" training "new" implementers (mostly at the July 1983 institute); and encouraging local ownership and independence.

Rewards. The initial excitement of SITIP waned, and the various rewards perceived by TAs became more integrated into their regular roles. Of the seven TAs who served the full year, one was pleased to see LEAs "standing on their own," three enjoyed seeing students and teachers doing well, four enjoyed the personal contact with local educators involved in instructional success, and five had gained knowledge and skill which helped them in their regular roles. One SITIP TA found no rewards in the role since it was perceived as very different from the regularly assigned role.*

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* Over the three years, 13 individuals held the TA role, including two who were "delegated" to the assignment. Four resigned from MSDE (one retiring, the other three accepting more challenging and rewarding positions in other organizations). Two received promotions. Two (including one who resigned) became involved in national-level activities directly related to SITIP responsibilities. One was assigned to provide leadership to a new SITIP-like MSDE project. These kinds of professional "rewards" are fairly common for those involved in TA activities.

Challenges. Regardless of the perceived rewards, all TAs experienced some common challenges relating to conflicting demands, communication/learning, and relationships.

The challenge of conflicting demands -- between SITIP and regularly assigned responsibilities -- continued to concern those TAs whose regular role was very different from their SITIP assignments. While all TAs officially had 15% of their time allocated to SITIP each year (about 33 days), in practice their regular supervisors expected priority to be given to regular tasks.* When faced with a direct choice, three of the seven TAs were more likely to "drop" the SITIP task. Two other TAs designed their work to integrate SITIP and regular tasks (and travel). Two TAs did not experience the problem to any great extent, partly because in their regular roles they reported to the ADS, who treated the 15% allocation as a reality. Individual perceptions of role conflict were supported by other evidence. While such conflict was not resolved, its impact was reduced when the TAs redesigned tasks and schedules, or negotiated a reduced work load with the partner for a given model.

The challenge of communication or learning was experienced by all TAs and was strongest for newly assigned staff. They had to learn about a model, local projects, and SITIP processes. They also had to learn the norms of the TA system and how to carry out the new role. They had to learn "the right questions to ask" and find out the extent to which (in SITIP) they should or could initiate. While the ADS and partners in dyads helped new TAs by offering reading material, formal communication (since it was between different divisions, and, in one case, between buildings 15 miles apart) did

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* The actual amount of time spent on SITIP ranged from 17 days (by the person perceiving the greatest role conflict) to 35 days (by one of the two people also perceiving high role conflict).

not always provide the kind of information needed. Informal communication was greatly influenced by staff/office proximity (opportunity to interact) and personal relationships. Some individual TAs did not become part of that informal system.

The challenge of relationships related to differences between state and local expectations and actions. For instance, four LEAs did not allocate SITIP funds to STL projects involved in prior years, investing in other models or programs instead, and hoping that STL activities would institutionalize themselves. The STL TAs believed they should continue to provide assistance to those projects, involve them in networking activities, and try to maintain program enthusiasm. However, communication was difficult, and LEA central office staff did not facilitate MSDE TA efforts. For other projects, relationship problems arose when LEA staff expected greater assistance and responsibility for program decisions than MSDE TAs were willing to give. For instance, local staff reassignments sometimes resulted in loss of the local SITIP advocate/trainer, and the LEA team then expected the MSDE to assume that role, but the TA (while willing to assist) expected local educators to take primary responsibility since the program was in its third year. In two cases where this problem occurred, fidelity and scope of implementation suffered even though TA help was very high in one case. In other cases, while the TAs expected to be "letting go," LEA staff expected them to make decisions about local issues. Since the TA role did change over the three years, clarification of expectations (overall and for each year) would probably have been useful.

In general, the challenges of the experience did reduce the TAs' level of effort and enthusiasm, but did not out-weigh the rewards of the TA role, nor

did they reduce the quality of the work done (partly because partners compensated for each other).

Tasks. The ten task areas originally identified were also addressed during the 1983-84 school year, although time allocations changed, and some areas were slightly redefined. (See Table 12 for an analysis of time invested.) During the twelve months ending June 1984, TAs spent about 202 days on SITIP, addressing the task areas of : (1) administration and budget (9%), (2) planning (10%), (3) knowledge building (6%), (4) materials development or identification (3%), (5) training (22%), (6) general support (6%), (7) visiting sites (24%), (8) evaluation (4%), (9) communication (8%), and (10) dissemination (8%).*

During the 1983-84 year these task areas were characterized as follows.

- Administration and budget consisted primarily of distributing and collecting forms from LEAs relating to funding and to local participation in SITIP training events. It also included record keeping of various kinds. No TA spent more than four days on this task area. About twice as much time was spent by the two TAs whose "regular" role as assistant to the ADS made it simpler for them to do the work than for the others.

- Planning included activity among the TAs during monthly meetings to design such events as the Instructional Leadership Conferences, or their follow-up training workshops. No TA spent more than four days on planning.

- Knowledge building consisted primarily of keeping up to date on the research on planned change and one or more SITIP models. TAs each spent one to two days on this activity.

- Materials development/identification work was minimal, with two days invested for each model except TV. This task consisted of compiling catalogues of locally developed materials, and/or developing materials such as video tapes for LEA use in training.

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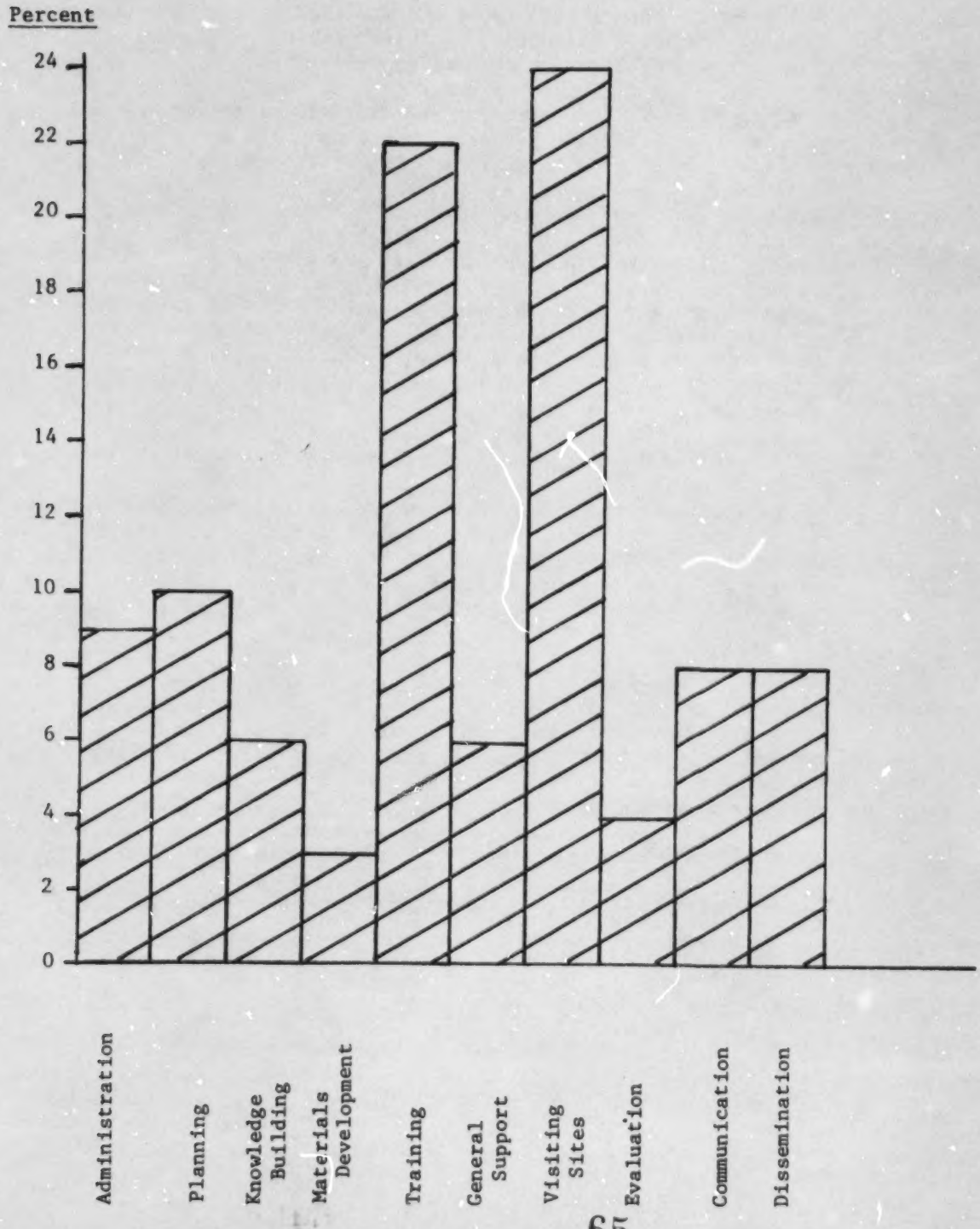
* TAs were assisted in these tasks by RBS staff, who spent most of their time on evaluation (including site visits) and dissemination of findings (often through training). The total time invested by RBS (June 1983-June 1984) was approximately 260 days (1.20 full time equivalent).

Table 12

TA Time Invested by Task: 1983-84
(as percentages of 202 days)



- Training included participating in and conducting sessions at the 1983 Summer Institute, at follow-up workshops, and at LEA workshops. Each TA spent between four and eight days on this activity, with about equal time invested for each model.

- General support included over-the-phone assistance, networking sites with common needs or interests, and sharing information. Each TA spent one or two days on this activity with the exception of one ML TA (ITV) who did not provide general support.

- Visiting sites was performed by all TAs, each spending between three and eleven days. The objective was for each LEA to be visited twice, with more visits for "new" sites. Specific purposes varied, and included:

  - monitoring fidelity of implementation
  - recognizing/acknowledging teachers' accomplishments to resolving problems
  - participating in cross-hierarchical team meetings to review progress and determine next steps
  - working with project coordinators to design training, develop implementation plans, or determine how to overcome barriers
  - building working relationships and mutual trust at all hierarchical levels so the model could be implemented.

- Evaluation was conducted by RBS, but TAs determined criteria for the design, informed LEAs of their responsibilities, clarified RBS' guidelines, helped LEAs develop evaluation plans, distributed and collected surveys and reports, and arranged for RBS to visit pilot sites. All but two TAs contributed to evaluation tasks, each investing one or two days.

- Dissemination took up to four days of a TA's SITIP time and included making SITIP-related presentations to key interest groups such as the ICC and professional associations, or at training academies; responding to requests for information from other states and from researchers in school effectiveness; and making presentations at national meetings.

During the twelve months ending June 1984, TAs spent 202 days on SITIP. For each model, between 45 and 55 person days were spent on technical assistance, with the least amount being devoted to STL (which received additional help from the Johns Hopkins developers), and the largest amount to AT and ML (which had many more participating schools than STL or TV). Individual TAs invested between 17 and 35 days each, with the veteran in each dyad spending slightly more time and taking lead responsibility.

Impact

Impact is discussed below in terms of the team and each dyad. Relative success was influenced by the challenges and perceived rewards discussed earlier. That is, when a TA found SITIP participation personally and professionally rewarding, and also found ways to resolve the challenges (particularly those relating to conflict of MSDE roles or conflict of state/local expectations), success in assisting local projects was high. From a local perspective, TA was valued when friendly collegial relationships were maintained and when the TA provided in-depth expertise to enhance local efforts or resolve problems. In terms of the particular purpose of the TAs for the 1983-84 year (i.e., helping LEAs take greater responsibility for their own projects), accomplishments varied, with the greatest single barrier being local turbulence (e.g., staff reassignments, project expansion or redesign) which usually resulted in increased demand for TA involvement.

In general, TA accomplishments included: providing leadership for a statewide project; providing opportunities for local educators to share and publicize their successes; applying strategies to facilitate implementation in new sites or expansion in old ones; maintaining networks among projects; and developing expertise themselves to apply not only to SITIP but also to other areas.

In addition, impact for each model included:

- AT -- combining expertise in AT (process) and in mathematics (content), so that materials and training provided by MSDE reinforced instruction and curriculum at a time when state functional mathematics test scores indicated need for improvement. Mean ratings across role groups of AT TA were 3.05, ranging from 2.94 (teachers) to 4.00 (central office staff) influenced by TA contact with a given role group.*

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* Ratings were on a five point scale with 5.00 as most positive.

- ML -- helping local educators to help themselves, in one case simplifying an overly complex project and resolving old issues, in others pressing for real fidelity of implementation or providing more indepth information; for all projects providing a catalogue of locally developed curriculum and training materials. Mean ratings across role groups of ML TA were 3.52, with the greatest difference between school administrators (4.14) and teachers (3.29).

- STL -- helping individual teachers by acknowledging their efforts, providing materials, or providing opportunities for them to visit other classes and exchange ideas; encouraging real fidelity of implementation by having project schools host visits from staff from other LEAs. The mean rating across role groups of STL TA were 3.33 (ranging from 2.91 assigned by teachers to 4.75 by central office staff). Specific reference was made by some respondents to the lead TA for her friendly helpfulness.

- TV -- encouraging involvement of central office staff in local projects, (e.g., for the May 1984 Instructional Leadership Conference) and helping to improve organizational climate (e.g., through follow-up activities). The mean rating of TV TA across role groups was 3.20 ranging from 3.02 (teachers) to 3.67 (school administrators).

The above examples relate to accomplishments resulting from TA actions. Lack of action sometimes had a negative impact, and was related to the role conflict of differing expectations.* For AT, some LEAs could have liked more on-site workshops. However, workshops were not conducted when an LEA appeared to be taking insufficient responsibility for a project. Also, one TA left MSDE in February, leaving the other with a heavy workload and little time for additional training.

For ML, large LEAs expanding their projects would have liked more MSDE support (funds or person time) to help get more done, but did not get it partly because the policy was to fund each LEA equally (regardless of LEA size, implementation strategy, or complexity of the model), and partly because the TA with appropriate expertise was "spread thin."

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* Problems specific to lack of TA action for STL were not identified during the school year.

For TV, some LEAs would have liked follow-up workshops that provided more substantive training, and others stated (rather vaguely) that they wanted "better" TA. These LEAs did not get what they wanted, partly because the TV TAs believed that local staff should take greater responsibility for their projects.

For all models, there were areas of need that could have been addressed by the TAs, but they were not recognized or were recognized at the end of the school year (e.g., specific curriculum or organizational needs in AT, teaching strategies for "correctives" in ML, curriculum exchange and increased systemic involvement for STL, and a much greater emphasis on strategies to improve instruction -- instead of the over emphasis on coding -- for TV).

Overall, energy and enthusiasm waned among TAs during the 1983-84 school year. However, some gains were consolidated, and there were activities or areas of high success for each model that would not have occurred without the TAs. Some lessons have been learned that are informing new projects. The recommended tasks that TAs set for themselves in June 1983 were addressed, and achieved to varying levels of satisfaction.

Evolution of Technical Assistance

This section reviews technical assistance from the spring of 1981 through June 1984. Attention is given to staff assignments, tasks and time allocations, and challenges and successes.

It is important to note that between December 1980 and June 1981, MSDE invested considerable effort in planning and training, conducting four major awareness conferences, planning summer training institutes, and assisting local teams in developing funding proposals and implementation plans. Evaluation of those activities indicated that systematic technical assistance would

be needed if SITIP was to succeed. Therefore, the ICC made a commitment to support TA beginning July 1, 1981 and assigned staff from their various divisions. Prior to that time, some people who subsequently became TAs had attended awareness conferences or planning sessions. However, while a few anticipated some involvement in general follow-up activities, none were formally assigned to a given model until late June. Therefore, the initial knowledge building activities of the TAs were not focused.

Staff assignments. Table 13 summarizes the participation of the TAs from January 1981 through June 1984, indicating for each model the number of TAs and their usual role (e.g., for Active Teaching, AT1 was a branch chief in basic skills, and both AT2 and AT3 were mathematics specialists in the same division). The extent of involvement is indicated over time and for critical events.

The greatest staff stability was for TV, with the same two people involved for almost the full three and a half years. Each of the other models had at least one TA participating for at least two and a half years. There was most change in ML, with two "unofficial" delegates involved for a short time, and "lead" responsibility switching from ML1 to ML2 in June 1982.

When staff were assigned to a model they had to learn about the model, about local implementation activities, about the norms of the TA system and of LEAs, and then had to learn how best they could provide assistance. All TAs found such learning difficult, with most difficulty experienced in the first few months of involvement, especially by people who did not attend training events conducted by the model developers (activities *1 and *3 on Table 13). Some TAs (especially for STL and TV) initially thought they did not need to develop expertise in the model, but could focus more on processes of implementation. While this caused no problems for STL (since developers readily

Table 13

Participation of Technical Assistants
1981-1984

Model	Incumbents' Regular Role	Extent of Involvement: Jan 1981 / July 1981 / Jan 1982 / July 1982 / Jan 1983 / July 1983 / Jan 1984 / July 1984
Active Teaching	1. Branch chief, basic skills, Inst.	*1 *2 *3 *4
	② Specialist, mathematics, Inst.	*1 *2 *3 *4 *3
	3. Specialist, mathematics, Inst.	*3
Mastery Learning	1. Branch chief, staff dev., C&A	*1 *3 *4 *3
	a. Specialist, staff dev, C&A	
	b. Specialist, staff dev., C&A	
	② Specialist, Title I, CUSP	*4 *3
	3. Specialist, inst. design, ITV	*3
Student Team Learning	① Administrator, Project Basic	*1 *2 *3 *4 *3
	2. Specialist, staff, dev., Lib.	*3 *4
	3. Specialist, media, Lib.	*3
Teaching Variables	① Administrator, Project Basic	*1 *3 *4 *3
	2. Specialist, staff dev., ITV/C&A	*3

Key:

Divisions
C&A=Certification and Accreditation
CUSP=Compensatory, Urban, Supplementary Programs
Inst=Instruction
ITV=Instructional Television
Lib=Library Services

Critical Events Attendance
*1=awareness conferences
*2=local spring planning
*3=summer institutes
*4=local fall planning
e=formally assigned as TA

Roles
The incumbent spending most time as the "lead" TA for a model is identified by ① or ②

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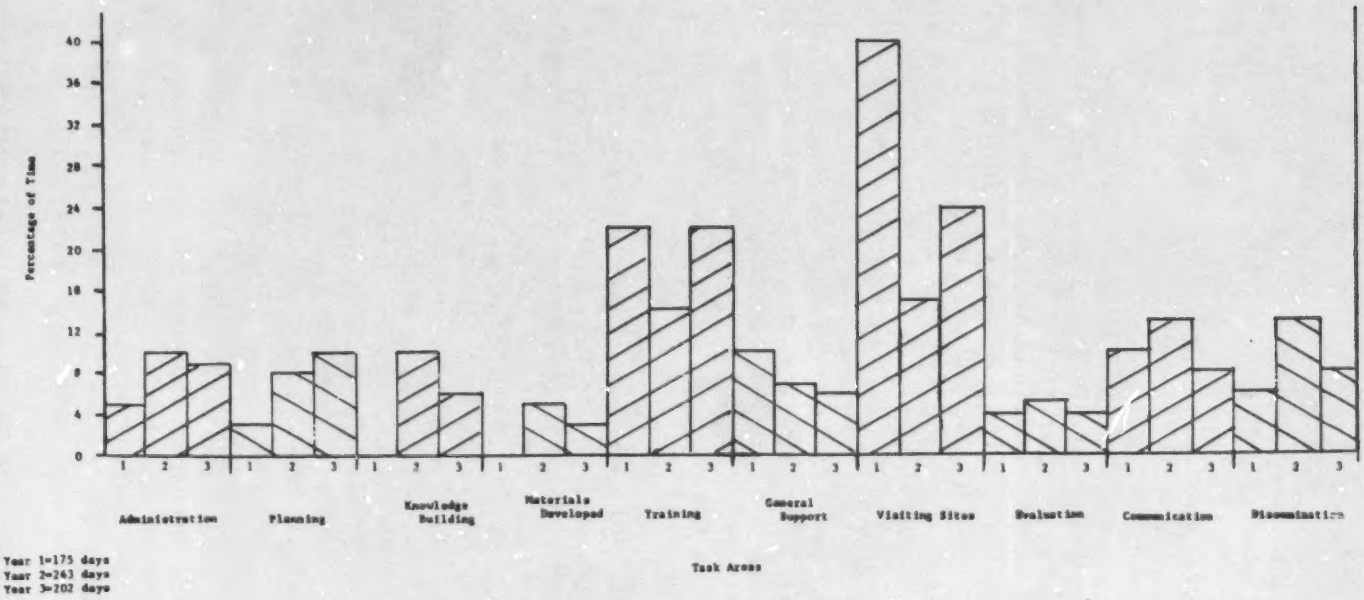
provided that expertise on request), it had a negative impact to some extent for all models, and effective TAs did invest effort in learning when they realized the need. For most TAs, learning of all kinds related to the role was on-going and cyclical, including theory and experience. Usually in the second year, everything "came together" and incumbents "discovered" how to integrate technical knowledge (e.g., related to a model or curriculum subject) with training skills and organizational strategies. Learning was individually determined, with some help provided by existing TAs to in-coming staff (always perceived by newcomers as inadequate), and almost no formal provision made within the TA system (with the exception of small amounts of time during some monthly meetings when philosophy and strategies were explored or recent studies reviewed). While many TAs considered learning as inadequate, little was done to correct the situation, partly because regular roles made heavy demands on incumbents' time, and partly because people often discovered their "need to know" after the fact. As "hindsight," 1984 TAs recommended greater attention to knowledge building, for themselves and for division directors who would thereby better understand the TA role and assign appropriate staff (with "field" experience and regular roles that could be readily integrated with a given model).

Tasks. Table 14 summarizes percentages of time invested by TAs in the ten task areas, making comparisons across the three years from June 1981 through June 1984. The total number of person days invested in Year 1 (June 1981-June 1982) was 175, for Year 2 -- 263, and for Year 3 -- 202. With the exception of evaluation tasks, percentages of time invested varied from year to year, and the specific nature of each task also varied.

Table 14

TA Time Invested Over Three Years, by Task



Year 1=175 days
Year 2=243 days
Year 3=202 days

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- Variation in the number of days spent was influenced partly by local needs, but more by the incumbent TAs. Branch chiefs spent less time on SITIP, finding the tasks conflicting strongly with their administrative responsibilities. Specialists in their first six to twelve months with SITIP spent less time, either because they were learning what to do or because they preferred working on the regular role assignments.

- Variations in the percent of time invested from year to year, and variations in the specific nature of a task area, were most strongly influenced by local needs.

- Administration. The nature of the task changed very little, consisting primarily of distributing and collecting forms from LEAs, allocating funds, and record keeping. The low investment (5%) in Year 1 was due to the fact that much of this work had been done before July 1981 by staff development branch staff and by administrators reporting to the ADS (before the TA system was organized).

- Planning. For this task, the low investment (3%) in Year 1 was also the result of a great deal of work done earlier by others. Planning related primarily to major training events such as the annual statewide instructional leadership conferences and summer institutes. It also related to MSDE programs similar to SITIP, such as URATE (a training/implementation project involving colleges and universities), and to LEA planning. The nature of planning changed little from year to year.

- Knowledge building consisted of reading and discussing research and practice on the models, classroom and school effectiveness, and planned change, and developing strategies to apply that knowledge. In Year 1, TAs did not do this, relying on their existing knowledge and experience. (Some did attend the 1981 summer institutes, building somewhat on knowledge of the models acquired at the January 1981 awareness conferences, but they did not believe at the time that they needed to become technical experts, thinking of themselves more as process facilitators.) In Year 2, several TAs (especially in AT and ML) decided they "needed to know" and invested 10% of their time building knowledge. By Year 3, with the exception of the two new TAs, this task evolved into keeping up to date or learning about specifics.

- Materials development/identification related primarily to training. TAs made video tapes and/or distributed developers' or ASCD tapes to LEAs, developed handouts for workshops, and distributed copies of relevant articles. In the first year, TAs did virtually none of this, relying instead on materials distributed to LEAs by developers. In Year 3, for ML and STL, TAs compiled and distributed catalogues of LEA-developed curriculum and training materials.

- Training. In Years 1 and 3, when summer institutes were conducted, 22% of TA time was invested in training. This task included facilitating sessions at training events, conducting workshops, working as partners with local staff in LEAs, and conducting follow-up sessions

which (for STL) included classroom visits. In Year 2, most TA training was conducted for new SITIP projects or in LEAs where staff reassignments had resulted in loss of the local trainer or advocate.

- General support included logistical and affective help, often over the phone or in brief encounters (at SITIP and non-SITIP events). Logistical support consisted of providing information, clarifying tasks or issues, making arrangements for site visits, or linking staff or project teams with common interests. Affective support consisted of acknowledging and publicizing successes, and maintaining a positive program orientation. TAs recognized individual teacher's strengths, and encouraged networking by inviting one project to learn from another's success. More time was spent on general support in Year 1 because local staff were getting accustomed to the project.

- Visiting sites took almost twice as much time in Year 1 (40%) as in Year 3 (24%), and the least time in Year 2 (15%), although in each year TAs visited each project at least twice. In each year, TAs observed classroom application (for all models except TV), and talked with representatives of all three role groups about the model and its use. They also engaged in trouble shooting and planning for project improvement, expansion, or termination. Sometimes they participated in local staff meetings or training sessions, or met with administrators to resolve difficulties or share successes. Most help was needed at the beginning of a project. Also, in the first year, TAs were themselves learning how to integrate tasks and manage time most effectively. Those two factors contributed to the high investment in Year 1. Year 2 was a "maintenance/consolidation" period for veteran projects and TAs learned ways of helping LEAs to help each other. Year 3 required decision-making, and TAs again spent more time "on-site."

- Evaluation was undertaken primarily by RBS. TAs invested about the same amount of time each year distributing and collecting surveys and related materials, keeping their own records, and assisting LEAs or RBS in data collection or evaluation design.

- Communication was defined as the interaction among TAs, other MSDE staff, or RBS about SITIP, and included the formal monthly TA meetings or reporting sessions to the ICC as well as more informal communication. This activity took as much as 13% (Year 2) to as little as 8% (Year 3), and was related to knowledge building and dissemination.

- Dissemination was defined as involving or informing others about SITIP, beyond those intended in the original plan. The greatest investment (13% in Year 2) included presentations at regional and national conferences, and training for non-SITIP implementers.*

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* An LEA implementing one model might ask for a workshop on another model, or a TA (in the "regular" role) might be invited to conduct a workshop and choose (as the major content area) a SITIP model or process.

While all TAs engaged in all task areas to some extent, administration and planning tasks were most likely to be undertaken by the administrators usually reporting to the ADS. Other regular roles did not greatly influence task allocation. For instance, contrary to what was expected, library media staff spent no more time on materials than other TAs, nor did staff development branch staff spend more time on training than other TAs. Local program needs and the individual TA's judgement of how he/she would respond were the strongest influences over the three years.

As TAs looked back over the period, they identified changes that should be made if a project like SITIP was initiated again. Those changes are presented here as recommendations.

- Educate MSDE division directors to build SITIP commitment, and to assign staff most likely to be successful.
- Assign TAs who can do double duty in field work and/or integrate SITIP tasks with regular role responsibilities, recognizing that most TA time is spent on site visits and training. Avoid TAs who lack commitment, resist the assignment, or are delegated tasks in which they have little knowledge or skill (especially expertise in classroom teaching and project management).
- Develop TA knowledge and skill in organizational analysis; techniques and strategies of project planning, management, support, and evaluation; application of research on planned change; the model (innovation) and its relationship to current state and local curriculum and instruction priorities.
- Involve TAs in knowledge exchange, informal observation of each other, and exploration of organizational differences and assumptions (in MSDE and the LEAs) in order to understand and use their autonomy effectively.
- Ensure that the 15% to 20% time per person per year to SITIP is a real commitment (by TAs and their supervisors), and that (in addition to intensive training and planning ahead of time) 40 to 60 person days are spent on support for each model each year.
- Ensure that in working with LEAs, TAs assist local staff in clarifying their purposes; ensure central office staff involvement and support by building a sound knowledge base and visiting schools and classrooms together; spend time on-site early in the project to build a common understanding of the project and state/local roles and responsibilities; develop and maintain good working relationships with local

staff; use site visits to engage in cross-hierarchical problem solving and not pro forma monitoring; and apply positive pressure and sound knowledge to ensure rich fidelity of implementation.

- Explore ways for TAs to build bridges across tasks within MSDE.
- Invest more time and enthusiasm in linking implementation of models, and/or linking SITIP (knowledge, beliefs, projects, people) with similar activities or task areas.

These "hindsight" recommendations were made on the understanding that they would be in addition to current TA practices that, overall, have had a positive impact on SITIP implementation.

Summary and Conclusions

MSDE initiated a statewide instructional improvement program that offered LEAs choices of exemplary models. The state department established an organizational structure across divisions, using existing expertise and mechanisms to provide coordinated support and to facilitate communication.

Planning activities invited participation across hierarchies and organizational units at the state and local levels. On-going communication about SITIP interacted with related activities in other program areas so that the "message" was clear, consistent, and widespread. The "message" was the research-based knowledge on classroom and school effectiveness, and planned change.

Through various state-sponsored training activities, representatives of all educational communities in the state had the opportunity to learn about this knowledge base. LEA teams contributed to the training and learned from each other and from "experts." Training activities were very well received and were followed up by assistance from MSDE staff.

SITIP TAs worked as a team to contribute to planning, design training, and provide on-site assistance related specifically to the models. They also

monitored plans, administered grants to local projects, and coordinated evaluation and dissemination activities so that data-based improvements could be made and successes could be widely spread. Their philosophy of building capacity in locally "owned" projects (rather than in monitoring compliance of a state "owned" project) was a positive influence on TA activities and outcomes.

As SITIP continues for the 1984-85 school year, so TA will continue, although the number of incumbents will be reduced to reflect reduced local needs. It appeared that by June 1984 technical assistance for SITIP was institutionalized as long as a real local need existed. However, as more LEAs developed their own training capacity and learned to help each other, MSDE assistance became less crucial. The notion of general technical assistance becoming institutionalized in MSDE instructional initiatives appeared to be conditional. That is, if a program director understands the benefits of TA, and allocates funds to support the person time needed, the assistance role will continue. (For instance, the proven value of Project Basic facilitators suggests that the role will continue, although incumbents may focus on a different state priority.) However, as one SITIP TA pointed out, "It's a risky investment if you don't understand it," and most members of the ICC appear more likely to continue to assign staff and develop programs in more traditional ways. Yet, individuals who provided technical assistance for SITIP will incorporate some of that knowledge and skill in their regular jobs. Also, in some other programs, aspects of technical assistance and parts of the SITIP design became apparent (e.g., URATE is a program like SITIP involving colleges of education).

SITIP was influenced (in 1980 as it was designed) by successful elements of the Professional Development Academies and Project Basic. By 1984, SITIP had, in turn, influenced both of those programs. Organizational learning occurred, to the benefit of LEAs, IHEs, and MSDE. Instructional improvement in over 180 schools was facilitated by MSDE initiatives.

V. LOCAL IMPLEMENTATION AND IMPACT

This chapter describes local implementation and impact of the SITIP models for the 1983-84 school year. The overall questions addressed were:

- What was the nature and extent of local implementation?
- To what extent were SITIP activities institutionalized?

Additional questions addressed included:

- What were the scope, intensity, and fidelity of implementation?
- What were the roles and responsibilities of local participants?
- What was the impact on schools and school systems, on educators, on students, and on instruction in general?
- What decisions and changes were made?

Finally, the answers to these questions were synthesized to determine:

- How did the various factors interact to influence project success?

In the following pages, some general background information is provided, the local implementation and impact of each model is discussed, and some conclusions and implications across models are presented and discussed.*

General Background**

This section summarizes the conditions of local implementation for all the models, first describing state and local goals, then reviewing expectations, planning and training, implementation strategies, and the scope of the implementations.

State and Local Goals

From the state perspective, successful implementation of SITIP would be

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* Case studies of each LEA are presented in a separate report.

** Please refer to the Summary of Findings: December 1980 to June 1983 presented in Chapter II of this report for additional background information.

use of one or more of the models by many teachers in many schools in all LEAs. The implementation would improve instruction (thereby improving students' achievement and attitude toward learning), increase teachers' effectiveness, prove to be useful for both elementary and secondary instruction in various academic subjects, increase administrators' ability to manage planned change, and be carried out in such a way that productive working relationships were maintained across role groups. Finally, as state funds were gradually withdrawn, MSDE hoped that local SITIP projects would be institutionalized, or terminated if instruction had not been improved (with that decision based on project results discussed by all role groups).

The goals of improved knowledge, skills, and attitudes for students and teachers were expected by most LEAs. Organizational harmony and administrative skills were not overt local goals. Also, very few LEAs were initially interested in promoting widespread use or systematic institutionalization, although some districts did address those goals after the first year.

Expectations

Since SITIP involvement was voluntary, it was important for LEAs to understand what was expected of them if they chose to participate. Each LEA was expected to implement a model with "fidelity," to involve cross-hierarchical teams in planning and implementation, to send representatives to state-sponsored training events, to interact constructively with TAs and other LEAs implementing a given model, and to provide information relevant to program evaluation and student assessment. Nine LEAs also agreed to serve as pilot sites for additional data collection by RBS. Each LEA received up to $5,000 in state funds for Year 1, and up to $3,000 in each subsequent year on condition that the local system provide matching grants. (For Year 4, state funds were available only to expanding projects.)

LEAs were free to choose the model(s) most likely to meet local needs, and to specify their own implementation strategies and the outcomes they expected. Also, each LEA could change plans (e.g., reduce or expand the scope of implementation, terminate a project, or adopt another model), and, in making such changes, were encouraged to make data-based decisions (e.g., referring to students' test scores, teachers' reports, or RBS' studies). If the LEAs reduced their workscope or procrastinated, they were offered assistance to meet their own goals or given the choice of returning state funds for that year.

Planning and Training

MSDE sponsored many planning and training activities, expected local involvement, and encouraged local educators to conduct similar activities.* Local participation in state sponsored activities for the 1983-84 year was fairly good, although no follow-up workshop was conducted for AT, and attendance for STL workshops was poor for those LEAs not using SITIP funds for that model.** The involvement of a cross-hierarchical team (a central office person, one or two principals and two or three teachers from each of the principals' schools) was important in key planning and training events, since it helped create a shared understanding and increased local ownership and commitment. In projects where team staff were reassigned, commitment was reduced, there was confusion about project status, and (sometimes) the purpose and value of the effort seemed to be lost. These setbacks could be overcome if planning and training activities were carried out, and TAs often assisted

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* See the section on Training in Chapter IV. State Initiatives and Assistance, for a description of state sponsored events.

** Three LEAs that originally adopted STL plus another model invested in the second model, leaving educators to implement STL independently.

LEAs in this area. Where projects progressed more easily, planning and training were conducted locally, sometimes with TA assistance, and -- for best results -- involved administrators as well as teachers.

Implementation Strategies

During Year 1, it became apparent that staff interest was the most influential factor in selection of the model and design of the implementation strategy. (High teacher interest was linked to individual classroom needs, but high central office staff interest was linked to district priorities.) While work at the school site was strongly influenced by the complexity of the model, work across the LEA (how much, how it was shared, how workloads shifted among role groups over time) was determined by the strategy. In other words, strategies requiring more work across role groups (and leading to widespread implementation) were initially selected in LEAs where administrators believed that SITIP could address a local priority. In some LEAs more than one model was adopted, sometimes with different strategies for each, and some models were added or deleted after the first year. When implementation was successful, a switch was sometimes made to a more work- intensive strategy. When implementation was less successful, a switch was sometimes made to a less work-intensive strategy or the project faded away.

The four strategies designed or selected by LEAs are summarized below. Table 15 relates strategies to scope of implementation for each model over the three years.

- District-wide. All schools at a given level (usually elementary) were involved, with the selected model used for a given subject all the time by participating teachers (at least three per school in the first year, all teachers in subsequent years). This strategy required the most work from the most people, with central office staff enthusiasm and effectiveness important for success. Two projects began with this strategy, and by June 1984 a third was also implementing SITIP district wide. The largest project involved 33 schools.

Table 15

Scope and Strategies of Implementation:
All Models Over Three Years

Models	Dates	# LEAs	# Schools	# Teachers	#LEAs per strategy			
					DW	PD	CB	LS
Active Teaching	June 1981	3	3	21			1	2
	Sept 1981	5	33	475	1	1	1	2
	June 1982	5	33	472	1	1	1	2
	June 1983	7	72	572	2	1	1	3
	June 1984	9	93	1710	2	1	1	5
Mastery Learning	June 1981	5	5	35		1		4
	Sept 1981	6	6	85+		1		5
	June 1982	6	6	81		1		5
	June 1983	7	13	203		1		6
	June 1984	8	49	711		1		7
Student Team Learning	June 1981	8	31+	59+		1	4	3
	Sept 1981	8	31+	59+		1	4	3
	June 1982	8	20+	105+		1	4	3
	June 1983	8	42+	113		2	3	3
	June 1984	7	26+	179		1	3	3
Teaching Variables	June 1981	9			1	2		6
	Sept 1981	6	6	25		1		5
	June 1982	5	6	51		1		4
	June 1983	6	12	98		1		5
	June 1984	6	17	123		1		5

Strategies: DW = District-Wide
PD = Pilot/District
CB = Capacity Building
LS = Lighthouse School

- Pilot/District. One to three schools were involved the first year, with strong central office support for school-based activities. Evidence of success led to greater administrative involvement and, in some cases, use of key teachers as turnkey trainers. This strategy was the most feasible, especially for complex models. Five projects began with this strategy, and eight were using it by June 1984. The largest number of schools involved in a pilot/district LEA was 28.

- Capacity Building. Training was conducted by the LEA team that participated in MSDE institutes. Teachers volunteered to "try" the model. There was no formal commitment to follow-up by administrators, although where this strategy was effective an administrator did "energize" the project. Five projects began with this strategy, of which three faded out during the second or third year. By June 1984, there were three capacity building projects (one having switched from a lighthouse strategy) with 15 schools involved in the largest project.

- Lighthouse. A single school was involved and no commitment was made by central office staff to advocate further use or initiate planning or training for other schools. Success was usually broadcast informally. This strategy put the greatest burden on school staff. There were 20 lighthouse sites initially; 14 by the end of Year 3, seven having evolved into pilot/district sites and one into capacity building. Two ending as lighthouse sites had begun with other strategies. By June 1984, the largest number of schools involved in a lighthouse LEA was three.

Over the three years of implementation, there were 31 projects in the 24 LEAs; 19 maintained their initial strategies; three maintained their strategies for a year or two and then faded out; 10 changed strategies, with eight increasing their work intensity and scope of implementation, and two reducing their intensity and scope of implementation. For widespread implementation, the lighthouse strategy was least effective, but was successful (from a small-scale perspective) when the model matched a principal's priority. Capacity building was least effective for maintaining systematic implementation, but did increase teachers' knowledge of an alternative instructional model. Overall, the pilot/district strategy was most effective, particularly for complex models in large LEAs. The district-wide model was successful with less complex models if attention was paid to building the commitment of school based staff.

Scope

Scope of implementation was related to the strategy used, initially reflecting central office staff's interest, but in some cases, being later influenced by project outcomes. The number of schools involved in Year 1 was 64, in Year 2 there were 141, and by the end of Year 3 there were 185. About 66% of the schools were elementary. Over the years, some LEAs with more than one project dropped or added models (in terms of funding or central office support). Also, the five LEAs not initially involved did adopt models at the beginning of Year 2 (and benefited from the "veterans'" experience). All grade levels and academic subjects as well as vocational-technical classes were involved. For AT, most participating teachers used the model all of the time for mathematics. ML was also used quite intensively. However, STL was used sporadically, and TV only directly influenced teachers' behavior (in the "content" variable) for language arts and mathematics at two schools. The scope, intensity, and fidelity of the implementation had a direct influence on a model's impact on students.

It is apparent that while all local educators hoped that teachers' knowledge and skill in instruction would improve for the benefit of the students, the expectations, processes, and levels of energy invested varied considerably, with project outcomes directly reflecting those influences.

Active Teaching (AT)

This section describes the local implementation of AT. The information presented here is based on various data sources, including survey questionnaires completed by 126 local educators (11 central office staff, 24 school-based administrators, and 91 teachers). All LEAs are represented in that population. Approximately 64% of the responding teachers used AT in elementary schools. Discussion focuses on: planning; the scope, intensity,

and fidelity of use; the roles and responsibilities of implementers; the outcomes in terms of impact on students, teachers, schools, and school systems; and influences and plans for Year 4. The section summary reviews major changes over the three years of implementation and presents some recommendations for the future.

Planning

As stated earlier, AT is a simple model of direct instruction, often perceived by experienced teachers as a traditional lesson structure. It was designed to be used for mathematics, but has also been used in other subject areas. Due to the developer's subject area emphasis and the fact that two of the three TAs assigned to AT over the three years were mathematics specialists, many LEAs focused on mathematics improvement. In some cases, plans expanded in Year 2 because scores for the statewide competency examinations (graduation prerequisites) were published, and central office staff made mathematics improvement a priority.

An analysis of local plans for the 1983-84 school year identified LEA objectives at the beginning of the year (September 1983), and the extent to which project coordinators considered objectives to be achieved at that time and also at the end of the year (June 1984). (See Table 16.) In each case, the percent of LEAs that "hoped for," "partly achieved," or "achieved" each objective is indicated. There were nine objectives identified, many partly achieved at the beginning of the year (having been addressed in Years 1 and 2), and some maintaining that status in June (especially in LEAs expanding projects to additional classes or schools). While the first five objectives might well be expected for AT, curriculum alignment (#6), and time-on-task (#8), are not part of the model but were strongly addressed in MSDE training activities over the three years and were adopted by LEAs striving to improve

Table 16

Status of Local Objectives, 1983-84: Active Teaching

Local Objectives	Percent of Sites Achieving Local Objectives							
	Pre-(Sept. 1983)				Post-(June 1984)			
		Status of Achievment				Status of Achievment		
	N	1	2	3	N	1	2	3
1. Improve student achievement (basic skills).	6	50	33	17	8	0	50	50
2. Improve student achievement (other subjects).	4	75	25	0	6	17	50	33
3. Inform local educators about model.	6	0	50	50	7	0	29	71
4. Train educators to use model.	6	0	67	33	8	0	63	37
5. Improve teachers' classroom competence.	6	0	83	17	7	0	57	43
6. Ensure match of instruction, curriculum, and test(s).	4	0	100	0	4	0	75	25
7. Help teachers become better organized.	6	0	67	33	8	0	63	37
8. Improve time-on-task.	6	0	67	33	8	0	50	50
9. Improve students' involvement in learning (motivation).	5	20	80	0	7	0	57	43

* 1 = Hoped for
2 = Partly achieved
3 = Achieved

Note. Total number of LEAs implementing Active Teaching equals 9. N equals the number of LEAs addressing a given objective.

No data are available on the status of objectives in September 1983 for Garrett and Washington counties. Somerset County began implementation after September. No data are available for June 1984 for Washington County.

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quality of implementation. Overall objectives addressed focused on classroom improvement, and indicated a shift from earlier attention to orientation and training.

Scope, Intensity, and Fidelity of Use

Scope of implementation indicates the numbers of districts, schools, teachers, and so forth which were involved. Intensity relates to the amount of time a given teacher or class used AT. Fidelity is the extent to which teachers implemented the components of the model as intended by the developer. Scope, intensity, and fidelity in the classroom were influenced by administrators' investment of time, and the kinds of activities they carried out. Influenced by the implementation strategy employed, these dimensions indicate the nature and extent of use. Table 17 summarizes the use of AT for Year 3.

Scope. Nine LEAs implemented AT: two used the district wide strategy; two were pilot/districts (one of which evolved from a lighthouse school); one used a capacity building approach; and four were lighthouse sites. Somerset and Washington were "new" sites, the former using AT as an improvement strategy for TV, the latter stimulated by involvement in a university study comparing AT with STL. While a few schools were added during the year, the most noticeable expansion was the increase in the numbers of teachers involved -- almost doubling from 872 to 1710. More than 9,000 additional students were involved, bringing the total to over 41,000, most of whom were in elementary mathematics classes. This expansion within schools was facilitated by key teachers (i.e., one or two teachers from each school or department who were trained and coached in Year 2), who then provided coaching for their colleagues trained by administrators in Year 3. Across the state, AT was the most widely implemented model, used in 51% of the SITIP schools by about 63%

Table 17

Scope of Implementation, September 1983 and June 1984: Active Teaching

LEA	Strategy	Dimensions									
		# of Schools		Type		# of Teachers		# of Students		Subject Areas	
		Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84
Caroline	LS/PD	7	7	E,J/M	E,J/M	91	85	2,736	2,695	M	M
Cecil	PD	25	25	E,J/M,H	E,J/M,H	200	700	7,500	13,000	R/LA,M	M
Garrett	LS	2	3	H	J/M,H	11	20	43	1,000	R/LA, M,O	R/LA,M,O
Harford	DW	34	33	E,J/M	E,J/M	451	671	18,622	18,650	M	M
Montgomery	LS	1	1	E	E	10	8	180	250	R/LA,M	R/LA,M
St. Mary's	CB	6	7	E,J/M,H	E,J/M,H	58	62	1,400	1,500*	R/LA,M Sc,SS,O	R/LA,M, Sc,SS,O
Somerset+	LS	-	1	-	E	-	10	-	300	-	M
Washington	LS	1	No data	E	No data	8	No data	150	No data	M	No data
Wicomico	DW	12	16	E	E	43	154	1,100	3,850	M	M

* Includes some duplicates.
\+ Began implementation after September 1983.

Strategy: LS=Lighthouse school
PD=Pilot/district
CB=Capacity building
DW=District-wide

Type: E=Elementary school
J/M=Junior high/middle
H=High school
O=Other

Subject Areas: R/LA=Reading/language arts
M=Mathematics
Sc=Science
SS=Social studies
O=Other

of the SITIP teachers. Twenty-eight of the 93 schools were secondary, 65 elementary.

Intensity. While five LEAs began in Year 1, two in Year 2, and two more in Year 3, and by June 1984, some teachers had therefore used AT for three years, the average amount of time for teachers' involvement was 1.55 school years. This is not surprising given that the number of teachers almost doubled each year. During the 1983-84 school year, teachers used AT for 8.7 months, with the lowest LEA mean 6.37 months (in a county experiencing high environmental turbulence due to staff reassignments). AT was used for all mathematics instruction by participating elementary teachers, for all mathematics instruction for at least one grade level in secondary classes, and for some classes in the three LEAs where the model was used for other subject areas.

Fidelity. AT as designed requires implementation of six components: (1) pre-lesson development (homework review); (2) lesson development (presentation of new information); (3) guided practice; (4) independent practice; (5) homework; and (6) weekly or unit review. Of the 90 teachers responding to the general survey, 91% carried out all six components regularly. All teachers in four LEAs carried out all components. In three other LEAs, all teachers carried out five components, with a few not implementing weekly or unit reviews. The two counties with lower fidelity levels (both lighthouse sites) had less administrative support than did other LEAs, one because of environmental turbulence, and the other because the project was in its first year and roles and responsibilities were being clarified.

Administrative investment. The amount of time administrators invested in SITIP during Year 3 was 16.45 days, with central office staff spending more time (mean = 25.5 days) than school-based administrators (10.17 days). Activity areas, in order of priority allocation of time, included: (1)

inservice, (2) monitoring/evaluation, (3) general support, (4) communication/administration, and (5) dissemination/expansion.* Where central office staff were involved in training, inservice was a high investment, but when that task was undertaken by teachers, administrative priority shifted to monitoring. In the two LEAs where implementation began in Year 3, and teacher training (in the single lighthouse schools) was conducted at the MSDE institute, administrators invested in monitoring instruction.

In general, the quality of implementation was high, particularly for elementary mathematics. The amount of time spent on AT was also high, providing a good opportunity for implementation to make a real difference in classroom instruction.

Roles and Responsibilities

The SITIP design encouraged the involvement of cross-hierarchical teams. By the end of Year 2, it was apparent that: (1) teachers involved in MSDE training activities often became instructional leaders or "key" teachers who coached others in their schools; (2) school based administrators of lighthouse sites and others trained by MSDE usually were supportive of their teachers and facilitated SITIP implementation; and (3) central office staff trained by MSDE often trained others in their LEAs and designed and maintained implementation and expansion activities. Locally trained educators could become advocates and invest time and energy if certain procedures were used to build commitment and provide logistical support. However, project success depended on very careful coordination of various activities and "messages," and could be

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* See Roles and Responsibilities for a more detailed discussion of activities.

seriously threatened by environmental turbulence.*

In Year 3, project staff needed to correct errors, consolidate successes, and make data-based decisions about use of the model as state funds were withdrawn. Local staff were encouraged to apply the recommendations made in earlier SITIP reports, with particular attention to central office staff involvement. The discussion below describes role group activities more specifically in terms of interactive support and leadership behaviors.

Interactive support. Support among LEA participants included exchanging information and materials, providing formal training, coaching and troubleshooting, managing logistical arrangements, and recognizing successes. Support from MSDE consisted primarily of training and technical assistance. Survey respondents rated the support received (on a five point scale from 1.00=very poor to 5.00=excellent), and the mean ratings assigned by each role group are presented in Table 18. Overall ratings ranged from a low of 2.49 (for developers) to a high of 3.76 (for school-based administrators). The developers of AT had no interaction with LEAs in Year 3, and received low ratings from all role groups. MSDE staff interacted primarily with central office staff, from whom they received their highest ratings. Among LEA role groups, teachers received good ratings from all, and (as in previous years) assigned lower ratings than did other role groups.

Ratings within each county indicated the following.

- With the exception of one LEA (Garrett), teachers were awarded above average ratings, reflecting their steady hard work in implementation.
- With the exception of one LEA (Garrett), school administrators were awarded above average ratings, with scores higher than their teachers in four LEAs where principals were particularly active (Caroline, Cecil, Somerset, and Wicomico).

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* "Messages" of implementation included overt statements of enthusiasm for the project and acknowledgement of teachers' successes and principals' investments, as well as more subtle notions such as sincerity in considering points of view and building shared understanding and trust about project purpose.

Table 18

Perceptions of Support Received: Active Teaching, 1983-84

Respondents	Support Groups									
	Teachers		School Administrators		Central Office Staff		MSDE		Developers	
	M	Means	M	Means	M	Means	M	Means	M	Means
Central Office Staff	9	4.00	9	3.67	9	4.00	10	3.80	9	2.67
School Administrators	22	4.04	18	3.89	22	3.41	22	3.27	18	2.22
Teachers	88	3.53	89	3.74	84	2.94	81	2.90	71	2.53
Total	119	3.66	116	3.76	115	3.11	113	3.05	98	2.49

Mean ratings range from a low of 1.00 (poor) to a high of 5.00 (excellent).

- Only in four LEAs (with district wide or pilot/district strategies) did central office staff receive above average ratings (Caroline, Cecil, Harford, and Wicomico) in all of which training was conducted and supervision carried out using AT guidelines.

- Low ratings reflected low interaction. When that was apparent for all local role groups, it signaled project decline. When apparent only for central office staff, it reflected a "lighthouse" implementation strategy where project maintenance was the school's responsibility.

In comparison to previous years, mean ratings across LEAs were somewhat lower for all role groups. However, this might be expected since most projects were integrating AT into routine activities for first and second year teachers, and also expanding to additional schools or teachers, thus "spreading thin." In general, in third year projects, energy levels were lower, which reduced interactive support among local participants.

Administrative leadership. Behaviors found to be important influences on project implementation and institutionalization were specifically defined, and participants were asked to assign ratings on each behavior for central office staff and school-based administrators. (See Table 19.)

Affective leadership behaviors were strongly evident, with both school-based administrators and central office staff demonstrating commitment, advocating the value of AT, and providing support by demonstrating interest and enthusiasm and recognizing teachers' success. Mean ratings were lower for central office staff because that role group had less responsibility and visibility in the five lighthouse sites than did their peers in LEAs with broader implementation strategies.

Logistical leadership behaviors were evident to some extent for both role groups. Higher ratings assigned to school administrators (all above 3.02) were influenced by proximity and visibility to teachers and by the fact that principals did carry out leadership tasks at all sites, while central office staff were not as heavily involved (especially for the lighthouse sites).

Table 19

Administrative Leadership Behaviors:
Active Teaching, 1983-84

Behaviors	Mean Ratings Assigned	
	To Central Office Staff N = 94	To School Based Administrators N = 100
Affective		
Demonstrate commitment	4.06	4.55
Provide support	3.45	4.12
Logistical		
Press for fidelity	2.77	3.02
Press for intensity	2.95	3.28
Provide assistance	3.39	3.80
Coordinate LEA communication	2.97	3.19
Coordinate school communication	2.81	3.57
Implement data-based decision-making	2.76	3.09

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Given the fairly routinized status of AT at most sites, a "moderate" press for fidelity and intensity (a rating of 3.00) is acceptable. Low ratings on those two behaviors (at some specific LEAs) were awarded when other evidence indicated project decline. The relatively high ratings for assistance indicated provision of information, materials and training, and effective responses to requests for help. Since this administrative behavior (assistance) was strongly encouraged by MSDE (and it influenced teachers' success), these ratings are positive. School communication ratings were good, but mean central office scores were (again) influenced by lower scores for lighthouse sites. Data-based decision-making for SITIP was about the same as for any other local project: MSDE had hoped that this behavior would increase.

In two LEAs, leadership was initially undertaken by teachers. The reassignment of a teacher leader upset the project, and further staff changes (accompanied by a somewhat low commitment) led to project decline. In the second LEA, the teacher leader maintained effectiveness in his school, but MSDE and central office involvement was necessary for expansion to other schools to occur successfully. For AT, and for other models, teacher leadership was effective within the home school with principal support, and in other schools only with considerable support and assistance from central office. It was extremely difficult for a single teacher to provide leadership (unless released from teaching responsibilities); it was easier and more effective when two or three teachers worked as instructional leaders.

For AT overall, interactive support and leadership was good, and appropriate to the implementation strategies used. Effective expansion was possible only when central office staff were involved. Good classroom implementation was reinforced when supervisors looked for AT during their classroom observations.

Outcomes

AT had an impact on students, teachers, schools, and school systems. While some LEAs voluntarily provided summaries of assessments of students' attitudes and academic achievement, in most cases, educators reported their perceptions. For Year 3 of the study, greatest attention was given to outcomes relating to institutionalization.

Students. All three LEA role groups believed that students benefited from AT. (See Table 20.) They all agreed that time-on-task improved and students enjoyed AT and learned more. Students understood the AT structure, and 40% of survey respondents found that learning skills improved, 33% reported improved grades or test scores, and 26% said that students' confidence and enjoyment of mathematics improved. Specifically, educators volunteered the following:

> "Students...master material quicker...retain more...are accountable for their learning...have greater confidence... have no time left to create discipline problems."

In one county, over 1,200 students responded to an attitude survey, with mean ratings above 3.89 for all items (on a five point scale ranging from 1.00=not at all, to 5.00=yes, a lot), indicating they understood and enjoyed the AT lessons, learned well, and got better grades than in lessons where AT was not used. Overall results agreed with those of Year 2, although ratings were slightly lower for Year 3.

Another county, having used AT (and a new curriculum) in mathematics for three years, reported results for grades 3, 5, and 8 on the California Achievement Test. Scores increased each year for each grade, with percentile ranks of 68, 71, and 69 (for grades 3, 5, and 8, respectively) in October 1983 when elementary students had had two years of AT instruction, and middle school students had had one year. These scores compare well with October 1981 scores of 62, 63, and 61 percentiles for the respective grades, before AT.

Table 20

Instructional Impact as Perceived by
Survey Respondents: Active Teaching, 1983-1984

Impact on Instruction	Role Groups			
	CO N=10	SA N=24	T N=90	Total N=124
Instructional Value				
Works in classroom.	4.50	4.71	4.44	4.50
Is worth the work it takes.	4.40	4.58	4.20	4.29
Impact on Teachers				
Teachers enjoy it.	3.90	4.17	4.04	4.06
Teachers have increased knowledge.	4.30	4.37	3.88	4.01
Teachers have increased skills.	4.30	4.50	3.90	4.05
Impact on Students				
Students enjoy it.	4.00	4.08	3.97	3.99
Students' achievement has increased.	3.70	4.00	3.86	3.87
Students are learning and retaining more.	4.00	4.00	3.84	3.89
Students' general behavior is better.	3.70	3.71	3.70	3.70
Students' are taking more responsibility for their own learning.	3.60	3.92	3.46	3.56

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).
CO = Central Office; SA = School Administrators; T = Teachers

Teachers. Teachers' knowledge of effective teaching and skill in instruction improved. Experienced teachers found AT "easy to use" and appreciated the "systematic perspective." New teachers found that AT provided a "structure for organizing lessons," and increased their confidence. Teachers said that they "made better instructional decisions" and "improved time-on-task." Many appeared to agree with the one who said, "This is the way that math should be taught."

In elementary mathematics classes observed, teachers were extremely well-organized. Objectives were clearly specified, and curriculum, instruction, and on-going assessment were well-aligned. Time-on-task was high, even when students used manipulables, since expectations were obviously established and management of materials went smoothly. Teachers maintained student attention without gimmickry, and provided various kinds of learning opportunities, using the chalkboard, overhead projector, number cards for total class individual response to guided practice, worksheets, and assorted games for independent practice. Success rate was good, partly because teacher aides coached in-class, partly because ability grouping was used to some extent, and partly because teachers provided systematic review and practice, attending to prior learning and varying learning styles.

The timeliness of AT, given state-wide competency prerequisites for graduation and the national concern over mathematics instruction, plus the expertise of MSDE TAs and LEA supervisors, increased the press on teachers to do well. Classrooms serving as pilot sites were busy and constructive. Teachers' adherence to AT, their use of a variety of instructional materials, and their attention to student mastery was impressive. While not all such activity can be attributed to AT, some can, and acknowledgement given to teachers' efforts also increased their enthusiasm.

Impact on students and teachers combined was defined as instructional gain. An analysis of variance showed significant differences between the counties on instructional gain. (See Table 21.) St. Mary's had the lowest and Wicomico the highest mean on this index. There were no significant differences between elementary and secondary schools on instructional gain.

Table 21
ANOVA Results for Instructional Gain: Active Teaching, 1983-84

Factor	N	$\bar{X}$	F	df	p
County	124	4.00	2.27	8/115	.03
Caroline	18	4.15			
Cecil	22	3.79			
Garrett	9	4.03			
Harford	14	3.90			
Montgomery	5	4.17			
St. Mary's	20	3.69			
Somerset	9	3.90			
Washington	9	4.32			
Wicomico	18	4.37			

Schools. As indicated by ratings presented in Table 20, educators believed that AT was worth the work. They found in some schools that cross-grade articulation improved, and the overall instructional program (in mathematics) was better organized. Of 249 statements about program benefits, 39% related to logistics, and 29% to the overall instructional program, indicating that AT improved instructional organization in adopting schools.

Of 75 negative comments, 49% related to AT implementation, indicating needs for more supplementary materials, reconsideration of time allocations, and some reduction of paperwork. In one LEA, classes were divided into two groups, and some teachers found instruction difficult. Others were concerned about misunderstandings caused by poor communication or insufficient inservice. Such misunderstandings contributed to low fidelity of AT use and resistance or rivalry in some LEAs. These concerns were felt by school staff but were caused in part at the school level and in part at the system level.

They related to outcomes in organization, policy, and process -- indicators of institutionalization.

School organizational outcomes were established fairly well, although teachers had a slightly lower perception of SITIP status, fidelity, and ownership than did administrators. Ratings assigned indicate the "health" of AT. (See Table 22.)

Policies for management and decision-making were also established fairly well (Table 23), although teachers believed to only a moderate extent that decisions were based on data.

Procedures used to institutionalize AT indicated that at the school level staff were assigned, inservice was modified, and resources were allocated, but survey respondents considered that local funds were used to only a slight extent (see Table 23).* During Year 3, LEAs continued to receive state grants, had to provide matching funds, and were expected to have staff build AT into existing tasks (as indicated by a 4.04 mean rating on staff accountability).

Low mean ratings on institutionalization indicators, especially when accompanied by low ratings on leadership behaviors, suggested project decline. Such results were apparent in one LEA. However, overall data suggest there was good institutionalization at the school level in most LEAs.

School system. In the four LEAs where the leadership and constructive involvement of the central office was intended, system level outcomes were particularly important. They were less important in the other systems where schools took greater responsibility for AT projects.

Of 51 positive comments about system outcomes, 35% related to logistics, 20% to process (such as training or participatory planning), 16% to the

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* However, "in-kind" contributions, such as person time, were considerable, especially in LEAs with district-wide strategies.

Table 22

Organizational Outcomes: Active Teaching, 1983-84

Outcomes	School		System	
	N	Mean	N	Mean
Cognitive				
Status of SITIP established	109	3.80	19	4.16
Close to 100% of teachers asked to participate do so regularly	107	3.81	19	3.95
Affective				
Local educators feel "ownership" of SITIP	105	3.35	19	3.74
There is harmony between teachers and school-based administrators about SITIP	108	3.95	19	3.68
There is harmony between school-based and central office staff about SITIP	103	3.56	19	4.00

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 23

Policy Outcomes: Active Teaching, 1983-84

Policies	School		System	
	N	Mean	N	Mean
Management is shared.	22	3.82	19	3.84
Decisions are data based.	107	3.37	17	3.63

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

instructional program, and 14% to organizational affect (such as team pride, mutual respect across role groups). Only 15 negative comments were made, mostly relating to process and organizational affect. The sense of both positive and negative comments was similar to that given for schools.

Institutionalization indicator ratings for school systems were almost all higher than those assigned to schools.* Organizational outcomes were apparent to a fairly large extent (Table 22), with a clear common understanding of SITIP and its use. Policy outcomes were good (Table 23). Examples of data-based decisions made district-wide included: extension of allocated time for elementary mathematics in one LEA from 45 minutes to 60 minutes daily; expansion of the number of teachers involved (to tripled numbers in two LEAs, and to more than 200 additional teachers in a third LEA). In all cases, decisions were influenced by student achievement data and teachers' assessment of the value of AT. Procedural outcomes were also strong, with inservice receiving the highest mean rating. (See Table 24).

Table 24

Procedural Outcomes: Active Teaching, 1983-84

Procedures	School		System	
	N	Mean	N	Mean
Inservice modified to support SITIP	106	3.92	20	4.15
Staff assignments and accountabilities modified	112	4.04	19	3.68
Resources allocated annually	109	3.28	19	3.63
Local funds used	18	2.33	18	3.11

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

* Teachers rated only schools. Over three years, teachers assigned lower ratings to almost all survey items than did administrators.

Ratings specific to each LEA demonstrated that lower levels of institutionalization at the system level put a greater burden on schools.

Overall, systemwide institutionalization was fairly strongly indicated for four LEAs, two of which had been involved for three years, and two for two years, all having involved between 75% and 100% of their schools. One other LEA, with three years experience, appeared to be moving toward more widespread use (with 26% of its schools involved), but systemwide institutionalization was weak since implementation was not centrally coordinated, and "press" was relatively low.

Relationships among outcomes. Data were grouped into the following indices: instructional gain, system institutionalization, school institutionalization, central office support, and school administrator support. Correlational analyses were conducted to determine the relationships among these indices. Correlations among the five indices showed strong direct relationships ($r \geq .50$) between system institutionalization and two other indices -- school institutionalization and central office support. There also was a strong positive relationship between school institutionalization and school administrator support. (See Table 25.)

Table 25

Intercorrelations Among the Indices: Active Teaching

Index	1	2	3	4	5
1. Instructional Gain		N.S.	.23	N.S.	N.S.
2. System Institutionalization			.86	.77	N.S.
3. School Institutionalization				.49	.63
4. Central Office Support					.42
5. School Administrator Support					

N.S. = Not significant at the .05 level.

Influences and Plans

Influences on past implementation and future action included environmental turbulence such as: (1) staff changes resulting in shifts in SITIP leadership; (2) program changes resulting in revising priorities or restructuring tasks; and/or (3) organizational changes. They also included the nature and extent of outside (MSDE) assistance, and local perceptions of program success.

Almost all LEAs experienced funding cuts resulting in organizational and staff changes, with serious negative outcomes in two cases where loss of leadership reduced training opportunities and interest in the project. One of those two counties also experienced shifts in program priority at the school level. Program changes also occurred in two other counties, causing SITIP leaders to work harder to maintain AT but not resulting in project decline. Projects survived turbulence when outside assistance "filled the gaps," or when local perceptions of success were strong enough to stimulate the extra effort needed to get the work done. Perceptions of success had greater impact when a large percentage of a district's schools was involved and senior administrators were impressed with the program. In cases where projects were primarily school-based, and few schools were involved, environmental turbulence was a much more serious barrier.

By the end of Year 3, the four LEAs with system-wide approaches had involved 81% of their 100 schools. For Year 4, they planned to complete inservice for elementary and middle school mathematics teachers, provide in-depth training in specific concepts, or expand AT to language arts. In general, they planned to reinforce institutionalization. The remaining five

LEAs had involved 5% of their 251 schools by June 1984. While one planned to add two schools in Year 4, the others focused on maintenance. Specific activities and factors influencing plans are presented in Table 26. In general, most participants (86.4%) planned to maintain their current level of implementation, primarily because they believed SITIP influenced student achievement (39%), and/or improved teacher's instructional skills (19%). Expansion was planned within schools, or to other classes or subjects, rather than to additional schools or for additional models. Teachers' and students' reactions were influential. Support will probably be reduced, and where it is provided will be related to improvement of teaching skills. Plans for reduction were minimal, influenced by funding cuts. Four factors that might have had a negative impact (listed on the survey) were not considered relevant by any respondent.

Summary and Conclusions

Over the three years of implementation, LEA involvement increased from five to nine counties, with impressive increases in the number of schools and teachers involved (1710 in June 1984). Most teachers using AT for mathematics did so for all classes in that subject; teachers in other subjects were more selective. Fidelity was high and concepts of the model well understood. Instruction in AT mathematics classes observed was excellent, with teachers finding AT a helpful framework for lesson organization.

Following some initial resistance, teachers became more comfortable with AT, and improved their instructional skills. School-based administrators encouraged application, and some used AT to focus attention on mathematics and improve cross-grade articulation of the curriculum. Central office staff in LEAs with a school-focused implementation strategy provided logistical support but were not strongly involved. In the four LEAs with a systemwide approach,

Table 26

Activities Planned and Influences Perceived
by Active Teaching Implementers (N=118)

Type of Activities	% Respondents**	% Respondents Per Factor*					
		1	2	3	4	5	6
Maintenance							
Maintain current level	86.4	39.0	7.8	10.4	19.1	8.7	
Allow voluntary use	11.9	3.4	.8	2.5	3.4		
Expansion							
Expand classes, subjects	33.9	6.8	.8	10.3	15.4		
Expand schools	6.8	.8	.8	.8	2.5		
Add another component of model	3.4	1.7	.8		.8		
Add a new model	4.2	1.7	.8			.8	
Support							
Conduct inservice	12.7	.8	2.5		8.5	.8	
Provide resources	16.9	4.3	2.5	.8	7.7	.8	
Reduction							
Discontinue SITIP	3.4						.8
Reduce activity by 25% or more	1.7						1.7
Totals		58.5	16.8	24.8	57.4	11.1	2.5

* Factors:
1. High student achievement data indicate SITIP value.
2. SITIP helps achieve a local priority.
3. Students and staff like SITIP.
4. Teachers' instructional skills improve with SITIP.
5. Senior administrators advocate SITIP.
6. Funding cuts: other things take priority over SITIP.
7. SITIP is not cost-effective
8. There is little staff support for SITIP.
9. Senior administrators have little interest in SITIP.
10. SITIP has very little to do with local priorities.

** Many respondents checked more than one type of plan.

central office staff coordinated the program and provided various kinds of assistance. When administrators and supervisors looked for use of AT during their regular classroom visits, there was a press for implementation which stimulated AT fidelity and quality of instruction. When it was also clear that administrators and supervisors were helpfully responsive to teachers' needs for help, organizational affect also improved. In contrast, when a more laissez-faire attitude was apparent in central office staff's attitude to AT, the message understood by teachers was that they were still primarily accountable for other (established) instructional tasks: the press was low, central office support weaker, and application more individualistic. Quality did not necessarily differ, but intensity and consistent use was stronger where teachers believed they were expected to use AT.

There was a clear distinction between school-based and system-wide approaches, with the former only moderately successful in moving toward institutionalization, even within the school, and the latter establishing routine use well. The one site with a capacity-building approach was essentially school-based since each school acted autonomously, but central office facilitated the knowledge building beyond the initial pilot school. In that school, AT was fairly well established, but in other schools in that LEA, institutionalization was not yet strongly indicated.

LEAs planning to continue using AT may wish to review the indicators and findings discussed in this report and monitor their progress accordingly, applying techniques and strategies to make improvements.* Expectation of use by administrators and supervisors in their regular interactions with teachers, coupled with specific assistance (e.g., through inservice) and a sense of

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* Each LEA may also review its own "profile" in a separate report: SITIP Case Studies 1984.

shared responsibility across role groups will facilitate implementation. In mathematics, continuation of training and assistance, plus additional networking or inter-LEA visits to exchange specific curriculum and instruction ideas (e.g., the videotapes developed by MSDE and some LEAs), will help maintain interest and meet some identified needs. In the past, AT implementers and MSDE TAs have generally assessed their successes and challenges well, and have addressed needs appropriately. It is hoped that trend will continue, with realistic recognition that (1) MSDE support will gradually be reduced, (2) LEAs with indications of project decline might choose to terminate, (3) school-focused sites might independently institutionalize at that level, and (4) districtwide use might continue to need extra effort from administrators and supervisors.

Since six of the nine AT LEAs have successfully dealt with environmental turbulence, it is expected they will institutionalize, but probably expand very little. It is too early to forecast institutionalization for the two LEAs which have used AT for one year, but data to date suggest a need for a stronger knowledge of AT and of successful implementation practices. One LEA has experienced turbulence, but did not resolve the resulting problems. If AT is to continue in that LEA, issues of procedure, organization, and leadership will need to be explored through data-based participatory decision-making, to determine redesign or termination.

In general, AT implementers experienced success in bringing about instructional gain. They believed that students achieved more and teachers' instructional skills improved. Most intended to continue to use AT for the 1984-85 year and beyond. Some planned consolidation, reinforcement, or expansion. One considered termination of the project, with voluntary independent use by individual teachers. Plans for 1985 were influenced by successes, by interactive support and administrative leadership, and by

environmental turbulence. Apart from the model itself (which has proven valuable in Maryland), strong positive influences continued to be those identified in earlier phases of this study (relating to interactive support, administrative leadership, and training and follow-up assistance from MSDE), which contributed to the outcomes of organization, policy, and procedures, which in turn indicated extent of institutionalization.

Mastery Learning (ML)

This section describes the local implementation of ML. The information presented is based on various sources including survey questionnaires completed by 98 local implementers (13 central office staff, 14 school administrators, and 71 teachers). All ML LEAs were represented. Approximately 42% of the responding teachers used ML in elementary schools. Discussion focuses on: planning; the scope, intensity, and fidelity of use; the roles and responsibilities of implementers; the outcomes in terms of impact on students, teachers, schools, and school systems; and influences and plans for Year 4. The section summary reviews the three years of implementation and presents some recommendations for the future.

Planning

As stated earlier, ML is a complex model that includes curriculum alignment, diagnostic/prescriptive instruction, and pre-designated mastery levels of achievement for the majority of students. Although ML was most often used in academic subjects, educators also used the model in a variety of subject areas.

An analysis of local plans for the 1983-84 school year identified LEA objectives at the beginning of the year (September 1983), and the extent to which project coordinators considered these objectives to be achieved at that

time and also at the end of the year (June 1984). (See Table 27). In each case, the percent of LEAs that "hoped for," "partly achieved," or"achieved" each objective is indicated. There were nine objectives identified, all partly achieved by at least 25% of the LEAs at the beginning of the year (having been addressed in Years 1 and 2), and some maintaining that status in June (especially in LEAs expanding projects to additional classes or schools). Greatest progress was made in curriculum alignment and classroom organization (items #6 and #7), and in general there was a shift toward achievement of all objectives. Although overall achievement was attained in specific sites or subjects, expansion activities were such that systemwide achievement did not occur.

Scope, Intensity, and Fidelity of Use

Scope of implementation indicates the number of districts, schools, teachers, and so forth that were involved. Intensity relates to the amount of time a given teacher or class used ML. Fidelity is the extent to which teachers implemented the components of the model as intended by the developer. Scope, intensity, and fidelity in the classroom were influenced by administrators' investment of time, and the kinds of activities they carried out. Influenced by the implementation strategy employed, these dimensions indicate the nature and extent of use. Table 28 summarizes the use of ML for Year 3.

Scope. Eight LEAs implemented ML. Four used a lighthouse school strategy, and four used a pilot/district strategy (three of which began as lighthouse sites but expanded in Year 3). Washington was a "new" site, attracted by other LEAs' successes, adding ML and AT to their original adoption of Student Team Learning. During the summer of 1983, four LEAs

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* In addition to the 28 implementing schools in Baltimore City, 12 other secondary schools received inservice during Year 3.

Table 27

Status of Local Objectives, 1983-84: Mastery Learning

Local Objectives	Percent of Sites Achieving Local Objectives							
		Pre-(Sept. 1982) Status of Achievement*				Post-(June 1983) Status of Achievement*		
	N	1	2	3	N	1	2	3
1. Improve student achievement (basic skills)	8	37	63	0	7	14	43	43
2. Improve student achievement (other subjects)	6	50	50	0	5	40	40	20
3. Inform local educators about model	8	37	25	37	7	14	43	43
4. Train educators to use model	8	37	50	13	6	17	50	33
5. Improve teachers' classroom competence	8	25	75	0	6	17	67	17
6. Ensure match of instruction, curriculum, and test(s)	8	25	50	25	6	0	50	50
7. Help teachers become better organized	8	25	63	13	6	0	83	17
8. Improve time-on-task	8	37	63	0	5	20	80	0
9. Improve students' involvement in learning (motivation)	7	29	57	14	6	17	50	33

* 1 = Hoped for
2 = Partly achieved
3 = Achieved

Note. Total number of LEAs implementing Mastery Learning equals 8. N equals the number of LEAs addressing the objectives.

No data on the status of objectives in June 1984 are available for Washington County.

Table 28

Scope of Implementation, September 1983 and June 1984: Mastery Learning

LEA	Strategy	Dimensions									
		#of Schools		Type		#of Teachers		#of Students		Subject Areas	
		Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84
Allegany	LS	2	2	O	O	17	18	260	350	R/LA,M, Sc,SS,O	R/LA,M, Sc,SS,O
Anne Arundel	LS	1	1	H	H	2	5	138	300	Sc	Sc
Baltimore City	PD	5	28	J/M,H	J/M,H	160	606	3,635	22,594	R/LA,M, Sc,SS,O	R/LA,M, Sc,SS,O
Baltimore County	LS/PD	6	6	E	E	31	32	1,032	1,094	M	M
Carroll	LS/PD	5	5	J/M	J/M	7	7	700	700	SS	SS
Howard	LS/PD	2	6	J/M	E,J/M	3	35	90	1,500	R/LA,Sc	R/LA,M, Sc,SS
Washington	LS	1	No data	E	No data	3	No data	60	No data	M	No data
Worcester	LS	1	1	E	E	7	8	129	240	M	M

Subject Areas: R/LA=Reading/language arts, M=Mathematics, Sc=Science, SS=Social Studies, O=Other

Strategy: LS=Lighthouse school, PD=Pilot district, DW=District-wide, CB=Capacity building

Type: E=Elementary school, J/M=Junior high/middle, H=High school, O=Other (K-12 and voc. ed.)

expanded to additional schools, and two of these LEAs added schools during the year (the greatest expansion occurring in Baltimore City).* From 78 teachers at the end of Year 1, projects expanded to involve about 715 teachers by June 1984, with numbers more than tripling (from 230 in September 1983) in Year 3. Over 20,000 more students became involved in Year 3, bringing the total to approximately 26,800, most of whom were in secondary schools. This expansion was greatly facilitated by veteran teachers (trained by MSDE and developers in 1981) who functioned as instructional leaders, conducting training and coaching for new teachers. Across the state, ML was the second most widely used model, used in 27% of the SITIP schools by 26% of the teachers. Of the 49 schools, one was K-12, one vocational-technical, 37 were secondary, and 10 were elementary.

Intensity. Six LEAs were involved since SITIP began, one became involved in Year 2; and another one in Year 3. Some teachers and administrators maintained involvement over the three years, but averages were reduced by the large number of "expansion" teachers. The mean number of years of teachers' involvement was 1.8 (2.07 years for school administrators, and 2.77 for central office staff). During the 1983-84 school year, teachers used ML 7.38 months, on average, with the lowest LEA mean 1.00 month (in Washington -- the new site). In three LEAs, one or two teachers used ML less than in previous years, but in most cases teachers used the model more. In three LEAs ML was used for all instruction in a given subject at given grade levels (elementary mathematics, high school biology). In one LEA, some SITIP teachers used ML for most basic skills classes, while others used ML more selectively. In the other LEAs, each participating teacher used ML for at least one course or unit of instruction. The overall in-class time in which teachers used ML was 43%, ranging from a mean of 14% for elementary teachers in one LEA to a mean of 55% for secondary teachers in another LEA. Consistent use of ML (with fidelity)

for a given subject had a positive impact on student achievement.

Fidelity. As designed, ML requires implementation of 10 components: (1) specified objectives, (2) component skills identified, (3) curricula matched to objectives, (4) instruction matched to curricula and objectives, (5) tests matched to objectives, (6) tests address higher and lower order thinking skills, (7) "no fault" formative tests given, (8) "correctives" and "enrichment" activities given after formative tests, (9) summative tests given after each unit, and (10) records kept per class/student/objective. In most cases mastery was defined as a minimum of 80% students achieving 80% success on summative tests. Of the 68 teachers responding to the General Survey, 62% carried out all 10 components regularly. All teachers in two LEAs carried out all components. Record keeping and inclusion of test items in higher order thinking skills were the components most often neglected (with the latter applied by only 82% of the teachers). Fidelity was influenced by the amount of time and expertise teachers had for development and planning, and the subject or unit addressed. (Where ML was used for basic elementary mathematics, higher order thinking skills were more likely to be disregarded.) In general the basic concepts of aligned curriculum, and testing and retesting after increased opportunity to learn, were addressed in all LEAs.

Administrative investment. The amount of time invested in SITIP by an administrator during Year 3 averaged about 27 days, with school administrators spending more time (mean=31.75 days) than central office staff (21 days). The former group included department heads and curriculum coordinators, as well as principals and vice principals who were more active in inservice and support in many sites than were central office staff. The latter did conduct inservice at some sites, but in general spent most SITIP time on administration and communication. Activity areas, in order of priority allocation of time by administrators, included: (1) inservice, (2) general

support, and (3) communication/administration.* No administrator stated that greatest time was spent on monitoring/evaluation or dissemination/expansion activities.

In general, the quality of implementation was good. The most serious weakness occurred (at some sites) for "correctives" and "enrichment," with (at worst) the former simply a rote repetition of initial instruction and the latter "busy work." The greatest strength was the development of curriculum aligned with objectives and tests, much of which was impressive in quality and quantity, and provided evidence of professional growth for participating teachers.

Roles and Responsibilities

The SITIP design encouraged the involvement of cross-hierarchical teams. However, with the exception of Baltimore City, all LEAs began the program using a lighthouse strategy, which meant that central office staff considered the program to be school centered and did not intend to be heavily involved. While school teams understood the strategy, a heavy burden was placed on teachers in their first year, since ML is complex and requires a considerable investment in development. By the second year, successes attracted attention, and in all but one LEA, expansion plans involved central office staff. By the end of Year 2, it was apparent that (1) teachers involved in MSDE training activities sometimes became instructional leaders, and usually were most active in materials development and on-site coaching for other teachers; (2) school-based administrators were ML advocates and active supporters of teachers' efforts; and (3) only when central office staff were actively involved through coordination and advocacy based on a thorough understanding

* See Roles and Responsibilities for a more detailed discussion of activities.

of the demands and rewards of ML in an LEA was it possible for the project to expand to other sites. Project success was influenced by adequacy of support (e.g., teacher time for development), and "messages" of implementation,* and could be threatened by environmental turbulence.

In Year 3, project staff needed to correct errors, consolidate successes, and make data-based decisions about use of the model as state funds were withdrawn. Local staff were encouraged to apply the recommendations made in earlier SITIP reports, with particular attention to central office staff involvement and consideration of support to teachers. The discussion below describes role group activities more specifically in terms of interactive support and leadership behaviors.

Interactive support. Support among LEA participants included exchanging information and materials, providing formal training, coaching and trouble-shooting, managing logistical arrangements, and recognizing successes. Support from MSDE consisted primarily of training and technical assistance. The ML developer maintained communication with MSDE TAs, but interacted directly with only one LEA (at a national workshop) in Year 3. Survey respondents rated support received (on a five point scale from 1.00 = very poor, to 5.00 = excellent), and mean ratings assigned by each ML role group are presented in Table 29. Overall ratings ranged from a low of 3.15 (for developers) to a high of 4.07 (for teachers). Among LEA role groups, teachers received very good ratings from all, and (as in previous years) assigned lower ratings than did other role groups.

Ratings within each LEA indicated the following.

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* "Messages" of implementation included overt statements of enthusiasm, acknowledgement of teachers' successes and administrators' investments, as well as more subtle notions such as sincerity in considering points of view, building shared trust, and developing shared high standards for ML materials and classroom instruction.

Table 29

Perceptions of Support Received: Mastery Learning, 1983-84

Respondents	Support Groups									
	Teachers		School Administrators		Central Office Staff		MSDE		Developers	
	N	Means	N	Means	N	Means	N	Means	N	Means
Central Office Staff	13	4.38	13	4.15	13	4.38	12	3.92	12	3.58
School Administrators	14	4.29	10	3.80	14	4.07	14	4.14	12	3.50
Teachers	70	3.97	69	3.65	69	3.81	61	3.29	48	2.96
Total	97	4.07	92	3.74	96	3.93	87	3.52	72	3.15

Mean ratings range from a low of 1.00 (poor) to a high of 5.00 (excellent).

- In all LEAs, teachers were awarded well above average ratings, in five cases being rated higher than other role groups, and often rated by administrative and supervisory staff as "excellent."
- School-based administrators were awarded average or above ratings by all role groups in all LEAs.
- Central office staff in all but one LEA (Howard) were awarded average or above ratings, and in three cases received the highest ratings of all role groups.
- Low ratings indicated low interaction and respondents' perceptions of relative disinterest on the part of a given role group.

In comparison to previous years, mean ratings across LEAs were about the same for all role groups, with a very slight increase for central office staff and decreases for the other role groups. These ratings support other data which indicated increased effort from central office staff in several LEAs and/or careful decision-making to meet teachers' needs.

Administrative leadership. Behaviors found to be important influences on project implementation and institutionalization were specifically defined, and participants asked to assign ratings on each behavior for central office staff and school-based administrators. (See Table 30.)

Affective leadership behaviors were evident, with administrative and supervisory staff advocating the value of ML, demonstrating commitment, interest, and enthusiasm, and recognizing teachers' success. Ratings were good for both the groups.

Logistical leadership behaviors were evident for both role groups, with organizational process ratings higher than those related to "press." The relatively high ratings for assistance indicated provision of information, materials, and training, and effective responses to requests for help. Since this administrative behavior (assistance) was strongly recommended by MSDE (and it influenced teachers' success), these ratings were positive. School and district communication ratings were good, reflecting administrative and supervisory staff efforts to correct some confusion that had been apparent at

Table 30

Administrative Leadership Behaviors:
Mastery Learning, 1983-84

Behaviors	Mean Ratings Assigned	
	To Central Office Staff (N=81)	To School-Based Administrators (N=83)
Affective		
Demonstrate commitment	4.35	4.17
Provide support	4.06	3.98
Logistical		
Press for fidelity	2.64	2.72
Press for intensity	2.69	2.80
Provide assistance	4.16	4.09
Coordinate LEA communication	3.76	3.40
Coordinate school communication	3.61	3.55
Implement data-based decision-making	4.04	3.71

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

some sites in previous years. Data-based decision-making, particularly by central office staff, received good ratings (better than for the other three models) which was commendable.

In three LEAs teachers undertook leadership tasks. In Anne Arundel the dePartment head took charge of the project, directly affecting the five teachers in his department. In Baltimore City, a teacher from the initial pilot school was released from classroom responsibilities to coordinate the project, directly involving 28 secondary schools. In Baltimore County the pilot school teachers participated in cross-hierarchical planning, and conducted training and coaching for 32 teachers in six schools. In all cases teachers as instructional leaders demonstrated considerable expertise in ML, were effective trainers and helpful coaches. They exhibited the administrative leadership behaviors listed in Table 30 Learning from experience and various SITIP activities, their "press" for quality implementation reflected a colleagial understanding of the demands of ML. As one said, "This year I've learned tolerance." They acknowledged their own professional growth and were capable in transferring their knowledge to others, taking into account the varying levels of interest and ability of participating teachers.

Overall, interactive support and leadership for ML were good. However, in three LEAs, central office staff could have attended more to school-based concerns and, in one case particularly, to recommendations from MSDE about project management. Where central office involvement was high, communication, fidelity, and scope of implementation were good. School based administrators were supportive and understood how ML could help them achieve school goals. Teachers continued to work hard, modifying development efforts in some sites.

Outcomes

ML had an impact on students, teachers, schools, and school systems.

Participants' perceptions were supported by data summaries, locally developed classroom and inservice materials, and newspaper articles. For Year 3 of this study, greatest attention was given to outcomes relating to institutionalization.

Students. Survey respondents agreed that students benefited from ML: they enjoyed it (mean rating of 4.13) and increased achievement (4.04). (See Table 31.) The goal of having at least 80% of the students achieve at least 80% mastery of core curriculum was achieved in most classes. However, careful analysis by several LEA indicated that the definition of mastery was revised somewhat after initial use of an ML course. The following example (from Carroll) is an illustration.

- On a pretest, 10% of below average students achieved scores of 80% or better, and 12.5% of above average students achieved that score (for an average of 6% student mastery).
- Results of course unit tests were 85.7% of above average students achieving mastery, 79% of average students achieving mastery, and 44% of below average students achieving mastery.
- On the post test, 44% of below average students achieved mastery, and 80.5% of above average students achieved mastery (for an average of 60% student mastery).
- All students took identical tests and were taught from the same set of lesson plans. Mastery level was revised downward.

In another county, mastery was initially defined as 100% students of the achieving 80% success, but the amount of time for correctives was such that levels were revised to 80-80. In some classes an 80-80 mastery was strictly maintained, but only for the core curriculum. In some schools, mastery levels varied, and even greater differences occurred between classes using tests of different difficulty levels. However, all participants agreed that student achievement improved with ML.

In another county (Allegany), vocational-technical students, using criterion-referenced tests, achieved 100% mastery in cosmetology and 86%

achieved 80% mastery in reading; on average, 84.5% of students in grades K-6 achieved 80% mastery in mathematics, and between 80.1% and 93% of students in grades 7-12 achieved 80% mastery in various subjects. Corrective instruction facilitated mastery (after formative testing) for as many as 46% of the students.

Data summaries based on CAT scores were submitted by Worcester and on Metropolitan scores by Baltimore County, both illustrating gains in elementary mathematics, the latter comparing ML with non-ML students in similar schools using pre and post test scores. In Worcester, ML students in first and second grades "grew" between 11 months and 13 months over the seven month school year. In Baltimore County, ML students gained an average of 1.7 years of grade equivalent compared with an average of 1.2 years for non-ML students.

Student attitude data from Carroll and Allegany indicated that at least 75% believed they learned more and got better grades with ML. They also found the lessons easier, and understood and enjoyed them.

Overall, ML had a strong positive impact on students in all LEAs. The expectations of success were evidenced in survey respondents' statements, such as, "I am seeing students who are achieving more than I thought possible."

Teachers. Teachers' knowledge of effective teaching and skill in instruction improved. Specific gains for teachers included: an increased sense of professionalism, better planning and organization of instruction, improved ability in diagnostic/prescriptive teaching and in curriculum development. While most teachers enjoyed ML, there were some unresolved needs including: time to develop new units of instruction; help in developing multi-choice tests that cover both high and low order thinking skills, and in developing effective corrective and enrichment strategies; and ways to reduce time invested in record-keeping. In many cases, teachers transferred some ML concepts to other classes and subjects.

Impact on students and teachers combined was defined as instructional gain. There were no significant differences among the LEAs or between elementary and secondary schools on instructional gain.

Schools. As indicated in Table 31, educators agreed that ML was worth the work it took. Of the 104 statements about program benefits, 37% related to logistics, 23% to the overall instructional process, and 21% to the positive impact on students, indicating that ML improved the management and planning of curriculum and instruction.

Of the 66 negative comments, 70% related to the overall instructional process, focusing primarily on time demands and concerns identified by teachers.

School organizational outcomes were good. (See Table 32.) Ratings assigned indicated the "health" of ML. In six of the eight LEAs, there was little disagreement among role groups about the cognitive and affective outcomes at the school level, and little difference among those counties on the five dimensions examined, although "regular participation" ratings did vary somewhat among districts. Results for the other two LEAs (Washington and Howard) indicated strong differences of perception between teachers and administrators at one site that began ML in 1983, and low mean ratings for both districts on cognitive and affective outcomes. In both LEAs, leadership changes may well have influenced these outcomes.

Ratings for policies of management and decision-making again indicated appropriate action for six LEAs, but for two LEAs, management was not shared across role groups, and in one case, decisions were not data-based. Overall means were fairly good. (See Table 33.)

Procedural outcomes followed a similar pattern, with the same two LEAs indicating lower ratings than the others, particularly for use of local funds,

Table 31

Instructional Impact as Perceived by
Survey Respondents: Mastery Learning, 1983-1984

Impact on Instruction	Role Groups			
	CO N=13	SA N=14	T N=70	Total N=97
Instructional Value				
Works in classroom	4.38	4.00	4.41	4.35
Is worth the work it takes	4.00	3.64	4.14	4.05
Impact on Teachers				
Teachers enjoy it	3.77	3.93	4.09	4.02
Teachers have increased knowledge	4.69	4.14	4.17	4.24
Teachers have increased skills	4.54	3.93	4.17	4.19
Impact on Students				
Students enjoy it	4.08	3.86	4.20	4.13
Students' achievement has increased	4.15	3.71	4.09	4.04
Students are learning and retaining more	4.00	3.71	3.76	3.79
Students' general behavior is better	3.54	3.50	3.56	3.55
Students are taking more responsibility for their own learning	3.85	3.57	3.75	3.73

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).
CO = Central Office; SA = School Administrators; T = Teachers

Table 32

Organizational Outcomes: Mastery Learning, 1983-84

Outcomes	School		System	
	N	Mean	N	Mean
Cognitive				
Status of SITIP established	89	3.85	19	3.74
Close to 100% of teachers asked to participate do so regularly	85	3.85	19	3.47
Affective				
Local educators feel "ownership" of SITIP	86	3.35	18	3.28
There is harmony between teachers and school-based administrators about SITIP	87	3.84	18	4.17
There is harmony between school-based and central office staff about SITIP	85	3.94	19	4.21

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 33

Policy Outcomes: Mastery Learning, 1983-84

Policies	School		System	
	N	Mean	N	Mean
Management is shared	19	3.79	20	3.50
Decisions are data-based	87	3.83	20	4.00

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

and in one case for staff assignments and accountabilities. Overall mean ratings at the school level indicated that procedures to facilitate institutionalization of ML were moderately well established. (See Table 34.)

Low mean ratings on institutionalization indicators, especially when accompanied by low ratings on leadership behaviors, suggested that the project was not doing well. In one case, low ratings were not unexpected since that LEA was just beginning. In the other LEA, the project may decline if appropriate action is not taken.

School system. System level results are reported in Tables 32, 33, and 34. They are more important for LEAs using a pilot/district strategy (e.g., Baltimore County) than they are for LEAs using a lighthouse school approach (e.g., Anne Arundel).

In most cases, institutionalization indicator ratings for the system level were all lower than those assigned to schools. The exceptions related to "harmony," "decision-making," and "inservice," with the comparative differences on those three dimensions influenced in part (positively) by the real efforts of administrators, particularly in five counties (Allegany, Baltimore City, Baltimore County, Carroll, and Worcester), and in part (negatively) by lower ratings assigned by teachers to the school level.* Overall, system organizational outcomes were moderate to good, particularly in terms of inter-organizational harmony -- an improvement over the first year when friction between role groups was strong. Policy outcomes were good, particularly in relation to data-based decision-making -- as evidenced by the quality and quantity of program impact data collected and used by ML projects. Procedural outcomes were fairly good.

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* Teachers did not rate system factors.

Table 34

Procedural Outcomes: Mastery Learning, 1983-84

Procedures	School		System	
	N	Mean	N	Mean
Inservice modified to support SITIP	82	3.71	21	3.76
Staff assignments and accountabilities modified	86	3.72	19	3.53
Resources allocated annually	88	3.79	20	3.70
Local funds used	20	3.15	18	3.22

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Low system level outcomes put a burden on schools. This was particularly important for the four LEAs using a pilot/district strategy. In three cases, system outcomes were good, and schools benefited, with teachers responsive to the support provided. However, in one case, institutionalization is uncertain since system outcomes were not strong.

Positive perceptions of central office staff, influenced by their participation in MSDE training events, and by instructional gain data, were strongly evident for ML. One adminstrator stated those perceptions: "SITIP is one of the best things MSDE had done for LEAs. It has provided us with an opportunity to do something we would not have done on our own by bringing in experts, and providing follow-up and an ongoing support system."

Relationships among outcomes. Data were grouped into the following indices: instructional gain, system institutionalization, school institutionalization, central office support, and school administrator support. Correlational analyses were conducted to determine the relationships among these indices.

Correlations among the five indices showed strong direct relationships ($r \geq .50$) between system institutionalization and three other indices -- school institutionalization, instructional gain, and central office support. School institutionalization correlated strongly with central office and school administrator support. Central office support was positively related to school administrator support. (See Table 35.)

Influences and Plans

Influences on past implementation and future action included environmental turbulence such as: (1) staff changes resulting in shifts in SITIP leadership; (2) program changes revising priorities or restructuring tasks; and/or (3) organizational changes. They also included the nature and extent of outside (MSDE) assistance, and local perceptions of program success.

Table 35

Intercorrelations Among the Five Indices: Mastery Learning

Index	1	2	3	4	5
1. Instructional Gain		.63	.34	.43	N.S.
2. System Institutionalization			.87	.63	.45
3. School Instititionalization				.56	.55
4. Central Office Support					.61
5. School Administrator Support					

N.S.=Not significant at the .05 level.

Note: The number of cases upon which the correlations were calculated varied.

Almost all LEAs experienced funding cuts, and the two largest districts (Baltimore City and Baltimore County), both planning ML expansion, bemoaned the availability of so little money for such an effective program. The major impact of low funding was slower and more cautious expansion.

Three other kinds of changes occurred: (1) changes in staff resulted in leadership shifts in three LEAs, with one being beneficial and the other two being somewhat negative since expertise was lost; (2) changes in programs led to considerable ML expansion in three LEAs; and (3) there were changes in organizational arrangements in three LEAs as a result of changes in leadership.

While all LEAs experienced changes, and six experienced all three kinds of changes, negative impact was relatively low, especially when project leadership remained constant and applied the knowledge exchanged at MSDE-sponsored training activities (or at inter-site visits). Turbulence was a problem when loss of leadership expertise was combined with low perceptions of success in terms of instructional gain and organizational outcomes. This occurred in two LEAs.

By the end of Year 3, the four LEAs using a lighthouse strategy had together involved five of their 189 schools and planned to continue implementation at about the same level.* The four pilot/district LEAs had involved about 11% of their 404 schools and planned to continue expansion in Year 4.* Survey respondents indicated specific activities and influential factors, and later (without reference to survey data) plans were submitted to MSDE by project directors. For most LEAs, individual responses and

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* One lighthouse site and one pilot/district site planned extensive training (involving the ML developer in one case) with systematic follow-up and coaching for elementary schools interested in implementation.

coordinators' plans agreed with each other. However, in one of the LEAs negatively influenced by environmental turbulence, a few survey responses recommended termination in light of more pressing priorities, but the project plan submitted indicated expansion.

Survey responses are summarized in Table 36. In general, most participants (61.2%) planned to maintain their current level of implementation or expand to other classes or schools (47%) primarily because high student achievement data indicated SITIP value. Provision of support through inservice and resource allocation was planned. Very few respondents advocated reduction. In addition to student achievement, other strong influences on plans included: improvement of teachers' instructional skills (identified by 50% of respondents), student and staff enjoyment (28.5%), and achievement of a local priority through SITIP (24.4%). Plans for reduction were influenced by funding cuts and low staff support.

Summary and Conclusions

Over the three years, local involvement in ML increased from six to 50 schools, from 78 to 715 teachers, with eight LEAs participating in June 1984. In the five LEAs involving elementary grades, ML was used primarily in mathematics classes; in the five LEAs involving secondary schools, ML was used in a wide variety of subjects. Intensity of use increased for most sites (but was very low for the new LEA), and fidelity was good. The most serious weakness of classroom use related to strategies for corrective and enrichment activities. The greatest strength was the organization of instruction facilitated by the quality of curriculum and test development (aligned with core objectives).

Materials development and on-site coaching (as well as classroom instruction) were frequently undertaken by teachers, who became instructional leaders at several sites. Leadership was also undertaken by school-based

Table 36

Activities Planned and Influences Perceived
by Mastery Learning Implementers (N=98)

Type of Activities	% Respondents**	% Respondents Per Factor*							
		1	2	3	4	5	6	7	8
Maintenance									
Maintain current level	61.2	27.6	5.1	8.2	10.2	4.1			
Allow voluntary use	16.3	3.1	2.0	6.1	3.1				
Expansion									
Expand - classes	47.0	23.5	6.1	6.1	6.1	2.0		1.0	
Expand - schools	19.4	4.1	3.1	2.0	4.1	3.1			
Add another component of model	6.1	2.0	1.0		3.1				
Add a new model	1.0	1.0							
Support									
Conduct inservice	29.6	5.1	5.1	4.1	11.2	2.0			
Provide resources	30.6	6.1	2.0	2.0	12.2	5.1		1.0	
Reduction									
Discontinue SITIP	1.0								1.0
Reduce activity by 25% or more	3.1						1.0		
Totals		72.5	24.4	28.5	50.0	16.3	1.0	2.0	1.0

* Ten factors were listed on the survey, of which eight were indicated as influential in planning by some respondents.

1. High student achievement data indicate SITIP value.
2. SITIP helps achieve a local priority.
3. Students and staff like SITIP.
4. Teachers' instructional skills improve with SITIP.
5. Senior administrators advocate SITIP.
6. Funding cuts: other things take priority over SITIP.
7. SITIP is not cost-effective
8. There is little staff support for SITIP.
9. Senior administrators have little interest in SITIP.
10. SITIP has very little to do with local priorities.

** Many respondents checked more than one type of plan.

administrators and central office staff, with the latter particularly appreciated in three LEAs. Useful leadership behavior included evidence of commitment and support accompanied by effectively coordinated communication, data-based decision-making, and "press" for fidelity and intensity of implementation. The "press" was lower than desirable in several cases, but where it occurred (accompanied by assistance), it contributed to quality implementation.

Impact on students and teachers was very good, with empirical data supporting educators' perceptions that student achievement increased, with a greater number of students achieving more than usually expected. There were no significant differences for instructional gain among LEAs or types of schools. Organizational, policy, and procedural outcomes were good, although the new LEA and one other had low ratings for institutionalization. School institutionalization was strongly correlated with support from school and central office administrators. District institutionalization was correlated with instructional gain, school institutionalization, and central office staff support.

Over the period of implementation, all LEAs experienced some form of environmental turbulence, but only two seemed to have been negatively influenced. In both cases, organizational outcomes were low or moderate, and instructional gain was not clearly determined. Negative influences experienced by at least two LEAs during the three years included: (1) initial confusion in assistance from MSDE resulting in misunderstanding or additional workloads in LEAs; (2) too much work planned too soon; and (3) changes in organization or leadship, resulting in loss of expertise or conflict of purpose among role groups. Positive influences (experienced by at least two LEAs) included: (1) training and follow-up activities by the

developer (Block), MSDE, and LEA teams that met participants' stated needs; (2) responsiveness of administrators to teachers' concerns; (3) local use of the model to accomplish local priorities; (4) stability and expertise of local leadership, with press for fidelity and attention to application of improvement strategies; and (5) clear stable purpose, acceptable to teachers.

In two districts, institutionalization was somewhat uncertain, but in the others indications were positive. The quality of implementation was good, and results worthwhile. As LEAs move into Year 4, at the classroom level attention should be paid to corrective and enrichment strategies; at the school level, to support in record-keeping and expansion of units; at the district level, to exchange of material and expertise and use of mechanisms for "veterans" to assist "new" sites; and between LEAs to learning from each other's experience in order to improve implementation overall and ensure institutionalization.

Student Team Learning (STL)

This section describes the local implementation of STL. The information presented here is based in various sources, including survey questionnaires completed by 53 local implementers (five central office staff, 10 school administrators, and 38 teachers). Six LEAs were represented. Approximately 32% of the responding teachers used STL in elementary school. Discussion focuses on: planning; the scope, intensity, and fidelity of use; the roles and responsibilities of implementers; outcomes in terms of impact on students, teachers, schools, and school systems; and influences and plans for Year 4. The section summary reviews major changes over the three years of implementation and presents some recommendations for the future.

Planning

As stated earlier, STL encourages cooperative learning and includes three different approaches, all of which require students to work in small groups. It can be used in a variety of subjects as long as appropriate materials are available. LEAs adopting STL considered it an alternative instructional process to be used primarily at the discretion of teachers.

An analysis of local plans for the 1983-84 school year identified LEA objectives at the beginning of the year (September 1983), and the extent to which project coordinators considered objectives to be achieved at that time and also at the end of the year (June 1984). (See Table 37.) There were nine objectives identified, all partly achieved by at least 25% of the LEAs at the beginning of the year (having been addressed in Years 1 and 2), and some maintaining that status in June. Progress was made in all areas, and was strong in informing educators, and improving student achievement and involvement. Since policy changes and implementation strategies resulted in a teacher or school focus of change (rather than a district focus) for all but one LEA, systemic achievement of objectives was not evident.

Scope, Intensity, and Fidelity of Use

Scope indicates the numbers of districts, schools, teachers, and so forth which were involved. Intensity relates to the amount of time a given teacher or class used STL. Fidelity is the extent to which teachers implemented the components of the model as intended by the developer. Scope, intensity, and fidelity in the classroom were influenced by administrators' investment of time, and the kinds of activities they carried out. Also influenced by the implementation strategy employed, these dimensions indicate the nature and extent of use. Table 38 summarizes the use of STL for Year 3.

Scope. Nine LEAs implemented STL, four of which were virtually "on their

Table 37

Status of Local Objectives, 1983-84: Student Team Learning

Local Objectives	Percent of Sites Achieving Local Objectives							
		Pre-(Sept. 1982) Status of Achievement*				Post-(June 1983) Status of Achievement*		
	N	1	2	3	N	1	2	3
1. Improve student achievement (basic skills)	7	57	43	0	6	17	50	33
2. Improve student achievement (other subjects)	7	71	29	0	5	20	40	40
3. Inform local educators about model	7	14	57	29	6	17	17	67
4. Train educators to use model	7	0	86	14	5	20	40	40
5. Improve teachers' classroom competence	7	0	100	0	5	0	60	40
6. Ensure match of instruction, curriculum, and test(s)	4	25	25	50	5	0	40	60
7. Help teachers become better organized	5	0	80	20	5	0	60	40
8. Improve time-on-task	5	20	80	0	4	0	50	50
9. Improve students' involvement in learning (motivation)	7	0	86	14	6	0	50	50

* 1 = Hoped for
2 = Partly achieved
3 = Achieved

Note. Total number of LEAs implementing Student Team Learning equals 9. N equals the number of LEAs addressing the objective.

No data are available for Prince George's and Baltimore counties. No June 1984 data are available for Washington County.

own" for Year 3 since the only support they received was representative participation in MSDE follow-ups.* In those four independent LEAs (Baltimore County, Prince George's, Washington, and Worcester), teachers who had participated in previous years were allowed/encouraged to continue on their own: administrative and supervisory (A&S) staff made no formal commitment to assist those teachers. State funds were not allocated to those STL sites: Prince George's requested no funds for Years 2 and 3; the remaining independent LEAs used state funds to support other SITIP models.**

While the four independent LEAs initially planned various implementation strategies, in Year 3 each had between one and ten schools functioning as independent lighthouse sites. For Year 3, while two LEAs could be considered pilot/district since they had centralized coordination to involve several schools, two others were lighthouses, and five were capacity builders. In practice, all LEAs functioned primarily as systems of loosely coupled schools, each of which was fairly isolated (like a lighthouse), and in which teachers helped each other.

As can be seen in Table 38, survey data are incomplete. Estimates based on other data sources indicate that about 30 schools were involved at the beginning of Year 3, and about 38 by June 1984, with approximately 200 teachers participating. While expansion was apparent in two LEAs, the number of participating teachers gradually decreased in other sites. Across the state, STL was used in about 14% of the SITIP schools by about 7% of the

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* Statistical data and survey responses were available for six LEAs: Calvert, Charles, Dorchester, Montgomery, Queen Anne's, and Worcester; and they are sources for information presented in tables in this report. Information about three of the independent sites (based on interviews and LEA presentations at follow-ups) is woven into some of the discussion.

** Montgomery also implemented other models but allocation of funds for STL was not changed.

Table 38

Scope of Implementation, September 1983 and June 1984: Student Team Learning

LEA	Strategy	Dimensions									
		# of Schools		Type		# of Teachers		# of Students		Subject Areas	
		Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84
Baltimore County	PD	No data									
Calvert	LS/PD	3	3	E,J/M	E,J/M	13	13	375	375	R/LA,M	R/LA,M
Charles	LS/CB	2	15	J/M	E,J/M,H	15±	116	200±	650+*	R/LA,M, Sc,SS	R/LA,M, SS, O
Dorchester	PD	4	4	E	E	6	16	150	425	R/LA,M	R/LA,M, Sc,SS,O
Montgomery	LS	1	1	J/M	J/M	12	7	440	350	R/LA,M, Sc,SS,O	R/LA,M Sc,SS
Prince George's	CB	No data									
Queen Anne's	CB	2	2	J/M,H	J/M,H	30	23	[illegible]	800	R/LA,M, Sc,SS,O	R/LA,M Sc,SS,O
Washington	CB	14	No data	E,J/M	No data	27	No data	880	No data	R/LA,SS	No data
Worcester	CB/LS	1	1	E	E	5	4	300	113	R/LA,M,	M,Sc,O

* At pilot school -- 1/3 of students at other middle schools.

Strategy: LS=Lighthouse school
PD=Pilot district
CB=Capacity building
DW=District-wide

Type: E=Elementary school
J/M=Junior high/middle
H=High school
O=Other

Subject Areas: R/LA=Reading/language arts
M=Mathematics
Sc=Science
SS=Social studies
O=Other

teachers. About a third of the schools were elementary; almost all secondary schools involved were middle or junior high schools.

Intensity. All but one LEA began implementation in Year 1, and many teachers and administrators maintained involvement over three years. The average for administrative and supervisory staff was two-and-a-half years, with leadership reassignments in only one LEA. On average, teachers were involved for just under two years (relatively low means were influenced by expansion site teachers). During the 1983-84 school year, teachers used STL over a period of 5.03 months on average, with the lowest mean nine weeks (one marking period in a high school), and the highest nine months (the full year in an elementary school). More than 55% of the teachers used STL more in Year 3 than they had done previously, with about half of the remaining teachers using the model for the same amount of time, and half for less time. On average, teachers used STL for about 18% of their in-class time across the year, ranging from 12% in an elementary school to 25% in a middle school. Many teachers used a particular STL approach (e.g., STAD) for one part of the curriculum (e.g., multiplication tables), and another approach later in the year for a different subject (e.g., social studies). Other teachers used traditional instructional techniques, adding STL for particular lessons or units within a course, often using STL for review rather than for instruction in new content. No one used STL consistently for a given course or subject.

Fidelity. STL has three approaches, each of which has key components. Regardless of the approach used, essential components include: (1) materials are available for peer tutoring, team practice, and individual and tournament quizzes, (2) peer tutoring takes place, (3) each team includes a mix of kinds of students (on given criteria), (4) quiz/tournament scores relate to individual and team achievement, and (5) successes are publicized. Of the 38

teachers responding to the general survey, 59% carried out all 5 components regularly. In two LEAs, 75% of the teachers carried out all components. In three LEAs, 50% carried out all components. Team composition was the most commonly practiced component. All other components were practiced by at least 82% of the teachers. STAD was the simplest and most popular approach (26% of the teachers used it), followed by TGT (22%), then Jigsaw (11%) -- the most complex approach.

Fidelity and intensity were influenced by the amount of time and expertise teachers had for development. (Although STL developers offered materials, teachers found that they had to be adapted to fit local curriculum, and often teachers preferred to develop their own materials.) Another influence was the perception that STL (unlike AT or ML) was not a process to be used continuously for general instruction, but rather a "fun technique" to stimulate motivation, to break routine, or to be used as an alternative approach for review. This perception influenced the expectations, or "press," by administrative and supervisory staff, and teachers acted on those perceptions (rather than on the developers' hope for more pervasive use). At its lowest fidelity, STL was a class organized by four-person groups, receiving whole class instruction followed by "practice" learning in pairs (often with one partner completing a worksheet while the other watched). At its highest fidelity, students worked in four-person groups using carefully designed materials that encouraged peer tutoring/learning, procedures and expectations were obviously well-understood, and the teacher could monitor and assist, as needed.

Administrative investment. The amount of time invested by administrative and supervisory staff during Year 3 averaged 19 days, with school-based administrators spending more time (mean=20.20 days) than central office staff

(12.50 days). The former group included department heads and curriculum coordinators as well as principals and vice principals who were more active than central office staff in general support or inservice in all sites. The latter were involved to a small extent in inservice in a few sites, but, in general, spent most SITIP time on administration and communication. Activity areas, in order of priority allocation of time by administrators, included: (1) inservice, (2) general support, (3) communication/administration, and (4) monitoring/evaluation.* No administrator said that dissemination/expansion activities were the most time-consuming tasks.

The quality of implementation was patchy. Differences were apparent not only between sites but also within schools, with one teacher using her regular worksheets and managing time-on-task poorly, and another teacher managing everything very well. The extreme of poor quality was less common. The greatest strength of STL was the focus on students (rather than on subject matter), which was always apparent and which was particularly appreciated in secondary schools.

Roles and Responsibilities

The SITIP design encouraged the involvement of cross-hierarchical teams. By the end of Year 2, it was apparent that: (1) teachers involved in MSDE training activities often became instructional leaders or "key" teachers who coached others in their schools; (2) school-based administrators of lighthouse sites and others trained by MSDE usually were supportive of their teachers and facilitated SITIP implementation; and (3) central office staff trained by MSDE were also supportive. For STL, in all LEAs all role groups were involved, but

* See Roles and Responsibilities for a more detailed discussion of activities.

central office staff remained primarily administrative, school administrators provided general support, and teachers took primary responsibility for implementation. In other words, roles and tasks for STL were basically the same as for the regular program. Locally trained educators could become advocates and invest time and energy if certain procedures were used to build commitment and provide logistical support. However, project success depended on very careful coordination of various activities and "messages,"* and could be threatened by environmental turbulence.

In Year 3, project staff needed to correct errors, consolidate successes, and make data-based decisions about use of the model as state funds were withdrawn. Local staff were encouraged to apply the recommendations made in earlier SITIP reports, with particular attention to central office staff involvement. The discussion below describes role group activities more specifically in terms of interactive support and leadership behaviors.

Interactive support. Support among LEA participants included exchanging information and materials, providing formal training, coaching and troubleshooting, managing logistical arrangements, and recognizing successes. Support from MSDE and STL developers consisted primarily of training and technical assistance. Survey respondents rated the support received (on a five point scale from 1.00=very poor to 5.00=excellent), and the mean ratings assigned by each role group are presented in Table 39. Overall ratings ranged from a low of 3.13 (for developers) to a high of 4.18 (for teachers). Among LEA role groups, teachers received good ratings from all, and (as in previous years) assigned lower ratings than did other role groups.

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* "Messages" of implementation included overt statements of enthusiasm for the project, acknowledgement of teachers' successes and principals' investments, as well as such more subtle notions as sincerity in considering points of view, building shared understanding, and trust about project purpose.

Table 39

Perceptions of Support Received: Student Team Learning, 1983-84

Respondents	Support Groups									
	Teachers		School Administrators		Central Office Staff		MSDE		Developer	
	N	Means	N	Means	N	Means	N	Means	N	Means
Central Office Staff	5	4.20	5	4.00	5	4.20	4	4.75	4	4.75
School Administrators	10	4.40	8	4.25	10	4.40	0	4.10	9	3.33
Teachers	34	4.12	38	3.58	34	3.38	32	2.91	34	2.88
Total	49	4.18	51	3.73	49	3.67	46	3.33	47	3.13

Mean ratings range from a low of 1.00 (poor) to a high of 5.00 (excellent).

Ratings within each county indicated the following.

- In all LEAs, teachers were awarded above average ratings, reflecting their steady hard work in implementation.
- With the exception of one LEA (Montgomery), school administrators were awarded above average ratings, with scores higher than their teachers in one LEA where they were particularly active (Queen Anne's).
- With the exception of Montgomery, central office staff received above average ratings. In Dorchester, a pilot/district where central office staff were particularly active, mean ratings were 4.58.
- Low ratings indicated low interaction and respondents' perceptions of relative disinterest on the part of a given role group. Coupled with data from other sources, ratings suggest that energy and interest remained fairly high in five LEAs (Calvert, Charles, Dorchester, Queen Anne's, and Worcester) but declined in the four other LEAs where implementation responsibilities fell to individual teachers.*

In comparison to previous years, mean ratings across LEAs were somewhat lower for all role groups except teachers. This might be expected since activities became more routine for veteran implementers. In general, in third year projects, energy levels were lower, which reduced interactive support among local participants. In independent sites, administrative and supervisory staff approved of STL use but initiated nothing, so that teachers integrating STL into their lessons did so with minimal support.

Administrative leadership. Behaviors found to be important influences on project implementation and institutionalization were specifically defined, and participants were asked to assign ratings on each behavior for central office staff and school-based administrators. (See Table 40.)

Affective leadership behaviors were evident, with both school-based administrators and central office staff demonstrating commitment, advocating

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* It is of interest that energy remained relatively high in Worcester since that was an independent site. In the summer of 1983, it received special recognition and was named as a demonstration site by the STL developer. Also, the principal and curriculum coordinator remained enthusiastic in support of STL teachers.

Table 40

Administrative Leadership Behaviors:
Student Team Learning, 1983-84

Behaviors	Mean Ratings Assigned	
	To Central Office Staff N=43	To School Based Administrators N=48
Affective		
Demonstrate commitment	3.93	4.00
Provide support	3.74	3.82
Logistical		
Press for fidelity	2.16	2.10
Press for intensity	2.33	2.30
Provide assistance	3.86	3.83
Coordinate LEA communication	3.59	3.40
Coordinate school communication	3.37	3.40
Implement data-based decision-making	3.30	3.24

Scales range from 1.00 (not at all) to 5.00 (to a very large extent).

the value of STL, and providing support by demonstrating interest and enthusiasm and recognizing teachers' successes.

Logistical leadership behaviors were evident to some extent for both role groups, with organizational process ratings higher than those related to "press." The relatively high ratings for assistance indicated provision of information, materials, and training, and effective responses to requests for help. Since this administrative behavior (assistance) was strongly encouraged by MSDE (and it influenced teachers' success), these ratings were positive. Communication ratings were good, indicating that information exchange for STL was somewhat above what was common for other projects. Data-based decision-making for SITIP was also somewhat better than for any other local project; MSDE had hoped that this behavior would increase. The low "press" ratings are important, and reinforce data from observations and interviews that, in general, teachers used STL at their discretion. While school administrators believed that central office staff wanted STL to be implemented as intended by the developer (with fidelity), and to be used regularly and often enough to be considered part of the instructional program (intensity), all other role groups perceived press for fidelity and intensity to be slight to moderate. Teachers rated "press" from central office as very slight (1.91 for fidelity, and 1.93 for intensity), and from school-based administrators as slight (2.00 and 2.15). They did not feel "held accountable" for using STL, but rather felt they had autonomy in deciding on STL use. These findings may not be considered particularly negative from the point of view of several LEAs since their planned purpose was to provide teachers with an additional instructional approach through staff development, with voluntary implementation. However, it should be understood that when administrative and supervisory leadership does not include strong clear expectations of fidelity and intensity of use,

application may gradually decline. This occurred in at least three LEAs, with administrators stating in one case that they "couldn't even find any teachers using STL at...(schools) now."

Decisions about classroom use of STL were primarily made by teachers; instructional leadership had a greater classroom focus for STL than for other models. In all sites, there was a heavy reliance on key teachers who had been trained by STL developers and MSDE TAs at MSDE follow-ups and institutes. Those key teachers trained others within their own schools, and (in three LEAs) trained teachers from other schools. In two cases, training beyond the initial school was conducted through a teacher center, with voluntary participation and use. In another case, an LEA training team was made up of key teachers from all six participating schools (to provide mutual support and exchange materials). Only at one of the teacher centers was training the primary responsibility of a central office staff person. This strong emphasis on teachers as instructional leaders was unique to STL, and was influenced by the perception of the model as an additional instructional tool, a classroom-centered activity to be used at the discretion of the teacher.

Overall, interactive support for STL was good. Leadership was shared, with leadership staff providing encouragement and logistical assistance, and teachers undertaking primary responsibility for the nature and extent of implementation. Expansion occurred only when administrative and supervisory staff were involved and made provision for teacher release time for training and development of materials. Materials were most often developed in conjunction with initial training. After that, even strongly committed teachers found almost no time for materials development, and so used STL only for the particular unit initially addressed.

Outcomes

Participants perceived that STL had an impact on students, teachers, schools, and school systems. No LEA provided student assessment data to support perceptions. For Year 3 of the study, greatest attention was given to outcomes relating to institutionalization.

Students. While there was strong agreement across all role groups that students enjoyed STL (mean = 4.47), there was somewhat less certainty about improvement in achievement (mean = 3.69). (See Table 41.) There was some concern that poor students "got away with less effort." Intense use of STL as an appropriate assistance technique for students failing the Maryland Functional Mathematics Test was successful in one case where students moved from the 40th to 90th percentile. However, other educators found that overuse reduced STL's effectiveness. In general, students looked forward to STL lessons, and welcomed the change from the "lecture" format. Elementary teachers were more certain of STL's impact on students than were secondary teachers, but when the responses of all role groups were combined, there was a consensus that the greatest benefit was the extent to which STL motivated students.

Teachers. Teachers learned to use a new and effective teaching strategy that helped provide variety in their instruction. STL was used for selected units of instruction at the discretion of the teacher. Most teachers found it easy and inexpensive to implement. However, some were concerned about the extra time required for planning and record keeping.

In the STL classrooms observed, teachers were well-organized. Students understood the process for each STL strategy (i.e., STAD, Jigsaw, TGT) and the objectives to be accomplished (i.e., student cooperation and competition). Some teachers used the materials developed by the STL developers at Johns

Table 41

Instructional Impact as Perceived by
Survey Respondents: Student Team Learning, 1983-1984

Impact on Instruction	Role Groups			
	CO N=5	SA N=10	T N=39	Total N=54
Instructional Value				
Works in classroom	4.60	4.70	4.21	4.33
Is worth the work it takes	4.20	4.50	3.79	3.96
Impact on Teachers				
Teachers enjoy it	4.20	4.40	3.89	4.02
Teachers have increased knowledge	4.60	4.33	3.78	3.96
Teachers have increased skills	4.60	4.33	3.54	3.77
Impact on Students				
Students enjoy it	4.80	4.67	4.38	4.47
Students' achievement has increased	3.40	3.89	3.68	3.69
Students are learning and retaining more	3.60	4.00	3.55	3.63
Students' general behavior is better	3.80	3.89	3.50	3.60
Students are taking more responsibility for their own learning	4.20	4.33	3.59	3.77

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).
CO = Central Office; SA = School Administrators; T = Teachers

Hopkins University. However, the majority of teachers developed their own STL materials. Teacher enthusiasm for STL was influenced by the MSDE TA's commitment and the ongoing involvement of STL developers (e.g., at STL follow-up sessions).

Impact on students and teachers combined was defined as instructional gain. There were no significant differences among the counties or between elementary and secondary schools on instructional gain.

Schools. As indicated in Table 41, educators believed that STL worked in the classroom and was worth the effort. In some schools, cross-grade articulation improved as well as cross-hierarchical communication and cooperation. Of the 101 statements about program benefits, 32% related to logistics (e.g., easy and inexpensive to use) and 31% to improvement in student behavior and/or performance. Of the 36 negative comments, 83% related to the instructional program (e.g., time involved for planning, record-keeping).

School organizational outcomes were fairly well established with the exception of regular participation and "ownership." (See Table 42.) Teachers had a lower perception of all five outcomes, especially "ownership" of SITIP. Ratings assigned indicate the relative "health" of STL.

Policies for management and decision-making were also fairly well established. Teachers felt that data-based decision making occurred to a moderate extent compared to administrators who felt that it occurred to a fairly large extent. (See Table 43.)

Procedures used to institutionalize STL were perceived to occur at a moderate to fairly large extent. (See Table 44.) Teachers perceived these procedural outcomes as occurring to a lesser extent than did administrators.

Low mean ratings on institutionalization indicators, especially when accompanied by low ratings on leadership behaviors, suggested project decline.

Table 42

Organizational Outcomes: Student Team Learning, 1983-84

Outcomes	School		System	
	N	Mean	N	Mean
Cognitive				
Status of SITIP established	51	3.78	9	4.11
Close to 100% of teachers asked to participate do so regularly	48	2.79	9	2.89
Affective				
Local educators feel "ownership" of SITIP	49	3.34	9	3.44
There is harmony between teachers and school-based administrators about SITIP	51	3.88	7	4.28
There is harmony between school-based and central office staff about SITIP	47	3.81	8	4.37

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 43

Policy Outcomes: Student Team Learning, 1983-84

Policies	School		System	
	N	Mean	N	Mean
Management is shared	14	4.14	9	3.67
Decisions are data based	49	3.31	8	3.25

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 44

Procedural Outcomes: Student Team Learning, 1983-84

Procedures	School		System	
	N	Mean	N	Mean
Inservice modified to support SITIP	51	3.94	9	3.78
Staff assigments and accountabilities modified	49	3.41	9	3.22
Resources allocated annually	49	3.51	9	3.67
Local funds used	14	3.57	7	3.71

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Such results were apparent in one LEA. However, overall data suggest that in LEAs responding to the survey, STL is being institutionalized at the school level although scope and intensity of use is relatively low. Other data suggest that as project status ends, institutionalization slips to the classroom level and STL use is determined by individual teachers.

School system. In the two LEAs where leadership and constructive involvement of the central office was intended, system level outcomes were particularly important. They were less important in the other systems where schools took greater responsibility for STL projects.

Of 11 positive comments about system outcomes, 46% related to logistics and 36% to process. No negative comments were made.

Organizational outcomes at the system level were apparent to a fairly large extent across the LEAs with the exception of regular participation and "ownership" which were established to a moderate extent. System level organizational outcomes were more firmly established than school level outcomes. (See Table 42.)

Policy outcomes were moderately to fairly well established. (See Table 43.) Teachers were involved in the management of the project, and decisions were made based mainly on student and staff enjoyment of STL. Procedural outcomes were also good with inservice receiving the highest mean rating. (See Table 44.)

System-wide institutionalization was strongly indicated for two LEAs, one of which had been involved for three years and one for two years. One used a pilot district strategy concentrating on the elementary level, and one used a capacity building approach at the secondary level.

Four LEAs did not respond to the survey question. One LEA, using a pilot district strategy began the project in one middle school, and because of its

success, the two feeder elementary schools joined the project during Year 3. STL appeared to be well established in these schools. The second LEA implemented STL in one junior high school with no intentions of system-wide institutionalization. The remaining two LEAs implemented STL independently, with teachers voluntarily using STL at their own discretion.

Relationships among outcomes. Data were grouped into the following indices: instructional gain, system institutionalization, school institutionalization, central office support, and school administrator support. Correlational analyses were conducted to determine the relationships among these indices

Correlations among the five indices showed strong direct relationships ($r \geq .50$) between system institutionalization and two other indices -- central office support and school institutionalization. School institutionalization was strongly correlated with school administrator and central office support. Central office support and school administrator support were strongly correlated. (See Table 45.)

Influences and plans. Influences on past implementation and future action included environmentaal turbulence such as: (1) staff changes resulting in shifts in SITIP leadership, (2) program changes resulting in revising priorities or restructuring tasks, and/or (3) organizational changes. They also included the nature and extent of outside (MSDE) assistance, and local perceptions of program success.

All LEAs except one experienced some type of environmental turbulence, leadings -- in five cases -- to a reduction in the number of teachers involved and/or the frequency of use of STL. Four of the five declining projects were independent, and while two of them maintained involvement with STL developers, that involvement did not appear to compensate for changes in local

Table 45

Intercorrelations Among the Indices: Student Team Learning

Index	1	2	3	4	5
1. Instructional Gain		N.S.	N.S.	.44	.41
2. System Institutionalization			.72	.99	N.S.
3. School Institutionalization				.54	.85
4. Central Office Support					.66
5. School Administrator Support					

N.S. = Not significant at the .05 level.

Note: The number of cases upon which the correlations were calculated varied.

administrators' commitment. Perceptions of project success stimulated the effort to overcome the negative influence of environmental turbulence in some cases. However, there is an indication that such perceptions may not be strong enough to ensure future widespread institutionalization.

By the end of Year 3, for the LEAs formally involved in SITIP, the two LEAs with system-wide approaches had involved 29% of their 24 schools. For Year 4, one LEA planned to maintain current levels of implementation and the other hoped to expand the model to other subjects and classes within the implementing schools. The remaining three LEAs (with school-based approaches) involved 10% of their 187 schools by June 1984. All three focused on maintenance with some expansion into other subjects and/or schools. The four independent LEAs planned to allow voluntary usage of STL with training opportunities for interested educators provided by two LEAs.

Specific activities and factors influencing plans are presented in Table 46. In general, most participants (64.8%) planned to maintain their current level of implementation, primarily because students and staff liked STL. Expansion was planned mainly in classes within implementing schools rather than in additional schools or through additional models. Inservice training and resources will be provided by some LEAs. Plans for reduction were minimal and were influenced by perceptions that STL was not cost-effective.

Summary and Conclusions

Over the three years of implementation, LEA involvement decreased from nine to five counties formally participating in SITIP. Of the nine LEAs, by the end of Year 3 teachers in four counties (in from one to 10 schools per LEA) were using STL on a voluntary basis without MSDE funding or formal support from central office staff. Of the remaining five counties, two changed their implementation strategies during Year 3, all increased the

Table 46

Activities Planned and Influences Perceived
by Student Team Learning Implementers (N=54)

Type of Activities	% Respondents**	% Respondents Per Factor*						
		1	2	3	4	5	6	7
Maintenance								
Maintain current level	64.8	18.4	10.2	24.5	6.1	1.9		
Allow voluntary use	35.2	9.8	1.9	17.6	1.9			
Expansion								
Expand - classes,	42.6	8.2	6.1	14.3	6.1			
Expand - schools	9.3	1.9	1.9	3.8		1.9		
Add another component of model	9.3	3.8	3.8			1.9		
Add a new model	5.6	1.9		3.8				
Support								
Conduct inservice	13.0	1.9	1.9		3.8		1.9	
Provide resources	22.2	3.8	3.8	7.7	1.9		1.9	
Reduction								
Discontinue SITIP	1.9							1.9
Reduce activity by 25% or more	5.6							
Totals		49.7	29.7	71.7	19.8	5.7	3.8	1.9

* Ten factors were listed on the survey, of which seven were indicated as influential in planning by some respondents.

1. High student achievement data indicate SITIP value.
2. SITIP helps achieve a local priority.
3. Students and staff like SITIP.
4. Teachers' instructional skills improve with SITIP.
5. Senior administrators advocate SITIP.
6. Funding cuts: other things take priority over SITIP.
7. SITIP is not cost-effective
8. There is little staff support for SITIP.
9. Senior administrators have little interest in SITIP.
10. SITIP has very little to do with local priorities.

** Many respondents checked more than one type of plan.

number of students involved, and three increased the numbers of teachers and schools involved.

STL was used in a wide variety of subject areas in both elementary and secondary grades. Fidelity was fairly high and concepts of the model well understood. The instruction provided in the STL classes observed was good, with teachers finding STL an effective alternative instructional process. STL was most often used periodically at the discretion of the teacher for reviewing certain concepts within a subject area. STL was not used consistently for an entire course. On average, teachers used STL for about 18% of their in-class time.

STL was perceived by most of the educators involved as a teacher-centered strategy. Teachers took primary responsibility for implementation. They planned lessons, developed materials, and trained other teachers. Central office staff and school administrators, in most cases, provided affective and logistical support, but did not "press" for fidelity and intensity of implementation. Low "press" contributed to the gradual decline in model usage experienced by some LEAs.

Two of the SITIP LEAs (one using school-based and one a system-side approach) had high ratings of institutionalization at both the school and system levels. Implementers in both LEAs received support from both central office staff and school administrators. Local plans included maintenance of current levels of implementation and expansion to other schools in the district.

Two SITIP LEAs (one using a system-wide and one a school-based approach) had high ratings of institutionalization at the school level. Implementers in both LEAs received more support from school administrators than from central office staff.

One SITIP LEA appeared to be in a state of gradual decline that may lead to termination. This LEA suffered environmental turbulence in the form of staff reassignments which led to a change in project leadership and increased workloads for implementers. During the first two years of the project, central office interest and commitment was minimal.* In Year 3, principal support at the lighthouse site was also low. Due to this lack of interest by administrators, teachers decided to spend their limited time on other priority areas.

In general, local educators experienced success in implementing STL. They believed that students' attitudes toward learning were more positive, and teachers acquired a new instructional strategy. Belief that students and teachers enjoy STL was stronger than belief or evidence that STL helped increase student achievement, and it was the former that influenced plans for Year 4. Most LEAs plan to continue using STL on a voluntary basis at the teachers' discretion. Some LEAs plan to expand STL to other classes and schools. Others plan to provide training for interested educators. It is hoped that LEAs will make appropriate project decisions based on the recognition that (1) MSDE support will gradually be reduced, (2) LEAs with indications of project decline might choose to terminate, (3) school-focused sites might independently institutionalize at that level, and (4) district-wide use might continue to need extra effort from administrators and supervisors.

Implementers from the four independent LEAs will probably continue to use STL on an individual voluntary basis with minimal central office or school administrator support. Two LEAs have provided training opportunities for interested teachers and have ties with the model's developers which may help keep STL usage alive.

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* In Year 3, central office staff attempted to improve rapport and support.

LEAs planning to continue using STL may wish to review the indicators and findings discussed in this report and monitor their progress accordingly, applying techniques and strategies to make improvements.*

Of general concern are: (1) the emphasis on voluntary use by teachers, (2) the fairly widespread belief that STL is more appropriate for occasional motivation than for a complete unit of instruction, (3) the low press for fidelity, and (4) the relatively moderate impact of STL on achievement. If teachers have appropriate materials they use STL, but if fewer than three teachers in a school are involved routinely, use declines. If STL is used properly for a complete unit of instruction, student achievement increases, but low-fidelity STL used sporadically may make no difference. Administrative press for fidelity and intensity encourages appropriate use, which should result in increased student achievement. Plans and strategies through June 1984 were most influenced by students' and teachers' enjoyment, but if they were equally influenced by increased achievement more widespread institutionalization of STL might well occur.

Teaching Variables (TV)

This section describes the local implementation of Teaching Variables (TV). The information is drawn from various sources, including survey questionnaires completed by 74 local implementers (eight central office staff, 15 school administrators, and 51 teachers). All TV LEAs were represented. Approximately 81% of the responding teachers were in elementary schools. Discussion focuses on: planning; the scope and intensity of use; the roles and responsibilities of implementers; the outcomes in terms of impact on students, teachers, schools, and school systems; and influences and plans for Year 4. The section summary reviews the three years of implementation and makes some recommendations for the future.

Planning

As stated earlier, TV as developed is a complex model with activities related to two variables: "time" and "content." Attention to "time" requires systematic data collection through classroom observation and strategizing to improve student time on task. Attention to "content" requires curriculum alignment and diagnostic/prescriptive instruction. As designed, the model relies primarily on knowledge based on elementary schools. While all six TV LEAs adopted the "time" variable, only three addressed "content" to some extent, thus reducing complexity. TV was most often used in basic skills classes, but was also used for other subjects in four secondary sites. LEAs perceived the model primarily as a method to collect data and to analyze use of time and content coverage.

An analysis of local plans for the 1983-84 school year identified LEA objectives at the beginning of the year (September 1983), and the extent to which project coordinators considered those objectives to be achieved at that time and also at the end of the year (June 1984). (See Table 47.) In each case, the percent of LEAs that "hoped for," "partly achieved," or "achieved" each objective was indicated. There were nine objectives identified, all partly achieved by at least 33% of the LEAs at the beginning of the year (having been addressed in Years 1 and 2), and some maintaining that status in June. Progress was made in all areas, and was strongest in curriculum alignment and helping teachers become better organized. Of the six LEAs involved, one (Kent) made progress toward systemic achievement of objectives. In that county, and in Calvert and Montgomery, informing and training other educators were objectives strongly addressed.

Scope, Intensity, and Fidelity of Use

Scope indicates the number of schools, teachers, students, and so forth

Table 47

Status of Local Objectives, 1983-84: Teaching Variables

Local Objectives	Percent of Sites Achieving Local Objectives							
		Pre-(Sept. 1982) Status of Achievement*				Post-(June 1983) Status of Achievement*		
	N	1	2	3	N	1	2	3
1. Improve student achievement (basic skills)	6	0	67	33	6	0	50	50
2. Improve student achievement (other subjects)	6	33	50	17	6	17	50	33
3. Inform local educators about model	5	0	80	20	6	17	33	50
4. Train educators to use model	6	0	67	33	6	29	42	29
5. Improve teachers' classroom competence	6	17	67	17	6	0	67	33
6. Ensure match of instruction, curriculum, and test(s)	5	20	40	40	5	0	20	80
7. Help teachers become better organized	6	17	33	50	6	0	57	43
8. Improve time-on-task	6	0	71	29	6	0	57	43
9. Improve students' involvement in learning (motivation)	6	0	100	0	6	17	50	33

* 1 = Hoped for
2 = Partly achieved
3 = Achieved

Note: Total number of LEAs implementing Teaching Variables equals 6. N equals the number of LEAs addressing each objective.

involved. Intensity relates to the amount of time a given teacher or class used TV. Fidelity is the extent to which teachers implemented the components of the model as intended by the developer. Scope, intensity, and fidelity in the classroom were influenced by administrators' investment of time, and the kinds of activities they carried out. Also influenced by the implementation strategy employed, these dimensions indicate the nature and extent of use. Table 48 summarizes the use of TV for Year 3.

Scope. Six LEAs implemented TV. Five began as lighthouse sites, of which three changed. One began as a pilot/district, but switched to a lighthouse approach in Year 3. In practice for Year 3, there was one district-wide LEA (Kent, which switched from a lighthouse approach in Year 2), one pilot/district (Calvert), three lighthouse sites, and one that began expanding from the lighthouse schools by using a capacity building strategy to train staff of several other schools (Montgomery). In the elementary schools in Somerset and Montgomery, TV was combined with Active Teaching, with the latter model used as an instructional improvement strategy. By the end of June 1984, 17 schools were using TV as part of SITIP, of which six were elementary, nine were middle schools, one was a high school, and one a vocational-technical school. (In Calvert and Montgomery, teachers in other schools were trained, and in Somerset other principals were trained. Some of those trainees also used TV, but did so less systematically than at the SITIP sites. These "voluntary" users did not provide data for this study.) About 123 teachers were involved (25 more than at the end of Year 2). Increased involvement occurred in Kent, Somerset, and Talbot. Across the state, TV was used in about 9% of the SITIP schools by about 5% of the teachers, and was the least used of the SITIP models.

Intensity. All but one LEA began implementation in Year 1, and many

Table 43

Scope of Implementation, September 1983 and June 1984: Teaching Variables

LEA	Strategy	Dimensions									
		# of Schools		Type		# of Teachers		# of Students		Subject Areas	
		Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84	Sept 83	June 84
Calvert	LS/PD	1	3	J/H	J/H	18	18	475	468*	R/LA,M, Sc,SS,O	R/LA,M, Sc,SS,O
Frederick	PD/LS	2	2	J/H	J/H	17	14	400	350	R/LA,M, Sc,SS	R/LA,M, Sc, SS
Kent	DW	7	7	E,J/H	E,J/H	56	52	1,430	1,561	R/LA	R/LA
Montgomery+	LS/CB	2	2	E,J/H	E,J/H	16	14	316	400	R/LA,M, Sc,SS	R/LA,M, Sc,SS
Somerset+	LS	2	2	E,H	E,H	11	12	388	420	R/LA,SS	R/LA,M, SS
Talbot	LS	1	1	O	O	12	13	253	250	O	O

* At pilot school — 1/3 of students at other middle schools.
\+ Teachers at one school were using Teaching Variables as a data collection technique for Active Teaching.

Strategy: LS=Lighthouse school
PD=Pilot district
CB=Capacity building
DW=District-wide

Type: E=Elementary school
J/H=Junior high/middle
H=High school
O=Other

Subject Areas: R/LA=Reading/language arts
M=Mathematics
Sc=Science
SS=Social studies
O=Other

teachers and administrators maintained involvement over the three years. The average for administrative and supervisory staff was just over two years. Teachers, on average, were involved for just under two years, with longest participation in Montgomery and shortest in Kent. Mean times were influenced in part by some late starts in Year 1, and in part by expansion site teachers. During the 1983-84 school year, teachers reported being involved 7.38 months on average, with the lowest mean one month and the highest the full year. Teachers reported involvement based on "time" observations. For instance, in one elementary school, teachers reported a full school year of involvement because each was observed by the principal at the beginning and end of the school year. However, since "content" was not addressed and little strategizing took place (since student engagement rates were high), intensity of TV use was minimal. At two other sites where teachers conducted observations of each other, in one case mean involvement was reported as 4.25 months and in another as 7.50 months, yet the intensity and frequency of activity were very similar at both sites. For these reasons, the self-report data do not present a reliable picture of implementation intensity. Other data sources indicate the following.

- In all but one site participating teachers were observed for "time-on-task" at least twice during the school year, and in some cases as many as seven times. An "observation" at one LEA took one full class period. At another, it was made up of three separate 10-minute "mini" observations, and at others was a single visit for part of a lesson.
- Teachers involved in "content" usually addressed one subject, in elementary schools for the full year, and in secondary schools for a given course and grade level.

Fidelity. TV has two variables. Key "time" components include: (1) systematic collection of time-on-task data to determine student engagement rate; (2) discussion of that data, either in a group or one-on-one between observer and the teacher observed, to determine strategies for improvement;

(3) application of improvement strategies (if needed); and (4) repeated data collection to check on improvements. Observations may be conducted by administrators, supervisors or by other teachers. "Content" may be considered as a kind of lesson planning/review process, with the following key components: (1) analysis and matching of objectives, curriculum, and assessment (using such standardized tests as the CAT); (2) knowledge of students' prior learning of related/ prerequisite skills; and (3) systematic record-keeping of content coverage (by objective) and student achievement. Of the 46 teachers responding to the general survey 78% addressed "time" and 52% addressed "content". Time-on-task data were collected for 74% of the teachers: 59% by peer observation, 57% by principals, and 35% by central office staff. (Some teachers were observed by more than one role group.) Discussion and strategizing was, for 67% of the teachers, one-on-one. For 57%, no improvements were considered necessary since engagement rate was high. For the remainder, some changes in classroom management were made and time-on-task improved. Where no changes were made, and only the "time" variable was addressed, implementation consisted virtually of data collection and analysis -- high fidelity, low intensity, with instructional improvement very unlikely. For "content," 46% addressed curriculum alignment, with 16% modifying curriculum or instruction following analysis, 26% keeping records, and 33% being aware of students' prior learning. Since curriculum alignment is done statewide for Project Basic, much ground work had been completed. However, teachers could also have applied lesson-specific outlines suggested in TV guidelines; few did so. In two LEAs teachers were totally uninvolved in "content;" in three LEAs, "content" activities were not systematic, and in two others activities were fairly systematic, with one (Calvert) using teacher-developed checklists for several subject areas and grade levels.

Fidelity was influenced by administrative "press" and by participants' understanding of the model. "Press" for fidelity and intensity was fairly low, and understanding varied from site to site. Although understanding (particularly for "content") was very good across all role groups in at least two sites, was mediocre in others, and in one LEA was very poor (resulting in extremely low fidelity). Relative understanding was influenced by training: emphasis on coding distorted the model toward analysis and away from strategizing and implementing for instructional improvement.

Administrative investment. The average amount of time invested in SITIP by an administrator was 20.50 days during Year 3, with central office staff spending less (mean = 18.33 days) than school-based administrators (21.43 days). Activity areas, in order of priority allocation of time, included: (1) monitoring/evaluation, (2) administration/communication, (3) general support, (4) inservice, and (5) dissemination/expansion.* Where administrative and supervisory staff conducted time observations, monitoring was identified as the highest area of activity except in one LEA where principals (responsible for observation but not perceiving that as monitoring) spent most of their time on inservice. In the remaining two LEAs, where teachers carried out observations and also conducted training, administrators and supervisors spent most of their time on communication/administration.

In general, the quality of implementation was patchy. The greatest weakness of TV implementation was the lack of strategizing for improvement. The greatest strength was evident in sites where understanding of the model was high and teachers strategized with each other. The emphasis on "time" coding was such that post-observation "discussion and strategizing" was (in some cases) simply a statement of the engagement rate and the fact that it was good

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* See Roles and Responsibilities for a more detailed discussion of activities.

enough not to warrant improvement activities. At it's worst, data were collected, teachers got feedback only if they asked, and the project was perceived not as a means of instructional improvement but as data collection without practical implication. At its best, TV provided a data-base for staff decision-making about instructional improvement, particularly in relation to difficult teacher-student relationships or classroom management, or it provided a focus for professional development by and for teachers.

Roles and Responsibilities

The SITIP design encouraged involvement of cross-hierarchical teams. By the end of Year 2, it was apparent that: (1) teachers involved in MSDE training activities sometimes became instructional leaders, or "key" teachers, who provided training or assistance to others in their LEA; (2) school-based administrators trained by MSDE and developers were more committed to implementation than those trained by "turnkey" trainers; but (3) central office staff (with only a very few exceptions) did not appear to have gained much from MSDE-sponsored training, since in all but one LEA they were not directly involved in implementation, and sometimes had little understanding of the model. In general for TV, central office staff undertook administrative tasks, principals were supportive, and teachers moderately active. In two sites, leadership tasks were undertaken primarily by teachers, but otherwise administrative and supervisory staff made decisions and organized activities. Project success was influenced by local "messages"* of implementation and environmental turbulence.

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* "Messages" of implementation included overt statements of enthusiasm, acknowledgement of teachers' successes and administrative and supervisory staff efforts, as well as such more subtle notions as sincerity in considering points of view, building shared understanding and trust about project purpose, and valuing the model.

In Year 3, project staff needed to correct errors, consolidated successes, add the "content" variable if so planned, and make data-based decisions about use of the model as state funds were withdrawn. Local staff were encouraged to apply the recommendations made in earlier SITIP reports, with particular attention to central office staff involvement. The discussion below describes role group activities more specifically in terms of interactive support and leadership behaviors.

Interactive support. Support among LEA participants included exchanging information and materials, providing formal training, coaching and trouble-shooting, managing logistical arrangements, and recognizing successes. Support from MSDE and TV developers consisted primarily of training, with some technical assistance and trouble shooting. In Year 3, developers had no interaction with LEAs although in previous years they conducted on-site training in three LEAs and participated in follow-up training conducted by MSDE. They also provided some assistance to one secondary school site. Survey respondents rated support received (on a five point scale from 1.00=very poor to 5.00=excellent), and mean ratings assigned by each role group are presented in Table 49. Overall ratings ranged from a low of 2.26 (for developers) to a high of 3.78 (for teachers). Among LEA role groups, teachers received average to good ratings from all, and (as in previous years) assigned lower ratings than did other role groups.

Ratings within each county indicated the following.

- In all LEAs, teachers were awarded above average ratings, but in only two counties were they rated higher than other role groups, and in one LEA they received lower ratings than administrative and supervisory staff.
- With the exception of one LEA school administrators were awarded above average ratings, and in three counties they were rated higher than other role groups.
- Average or above ratings were awarded to central office staff in four LEAs, but in two cases their ratings were lower than for the other two local role groups.

Table 49

Perceptions of Support Received: Teaching Variables, 1983-84

Respondents	Support Groups									
	Teachers		School Administrators		Central Office Staff		MSDE		Developers	
	N	Means	N	Means	N	Means	N	Means	N	Means
Central Office Staff	7	3.86	7	3.14	7	3.14	8	3.50	5	2.60
School Administrators	14	4.21	10	4.30	15	3.47	15	3.67	10	2.90
Teachers	51	3.65	51	3.73	51	2.73	51	3.02	47	2.09
Total	72	3.78	68	3.75	73	2.92	74	3.20	62	2.26

Mean ratings range from a low of 1.00 (poor) to a high of 5.00 (excellent).

- Low ratings indicated low interaction and respondents' perceptions of relative disinterest on the part of a given role group.

In comparison to previous years, mean ratings across LEAs were about the same for all role groups, with very slight increases for teachers and school administrators, and decreases for the other role groups. Since expansion was minimal, it was not surprising that there were few changes.

Administrative leadership. Behaviors found to be important influences on project implementation and institutionalization were specifically defined, and participants asked to assign ratings on each behavior for central office staff and school-based administrators. (See Table 50.)

Affective leadership behaviors were evident, with administrative and supervisory staff demonstrating commitment, interest, enthusiasm, and recognizing teachers' success. Ratings were slightly higher for school-based administrators.

Logistical leadership behaviors were evident to some extent for both role groups with organizational process ratings higher than those related to "press," but none much above a moderate level except for provision of assistance from school administrators. The latter indicated provision of information, materials and training, and effective responses to requests for help. Since this administrative behavior (assistance) was strongly encouraged by MSDE (and it influenced teachers' investment of effort) this rating is positive. School communication ratings are good, but mean central office scores reflect the low participation of that role group in most sites. Data-based decision-making was a little better at the school level for TV than for other programs; MSDE had hoped this behavior would increase.

In three LEAs, for six secondary schools, leadership was undertaken by teachers (with strong administrative and supervisory support). In each of three of the schools (two LEAs) key teacher teams ran independent projects.

Table 50

Administrative Leadership Behaviors:
Teaching Variables, 1983-84

Behaviors	Mean Ratings Assigned	
	To Central Office Staff (N=53)	To School Based Administrators (N=60)
Affective		
Demonstrate commitment	3.35	3.95
Provide support	3.11	3.80
Logistical		
Press for fidelity	2.04	2.23
Press for intensity	2.04	2.32
Provide assistance	3.00	3.62
Coordinate LEA communication	2.69	3.00
Coordinate school communication	2.68	3.30
Implement data-based decision-making	2.88	3.17

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

In the third LEA, a key teacher team at one school trained other teams, and maintained communication among the schools. In that LEA, administrators were fully informed of project successes and problems (and facilitated expansion), but in the two other districts administrators were relatively uninformed. In all three LEAs, actual data (collected by peer observation) on specific classes were not used in teacher evaluation. Independent teacher implementation was relatively unsuccessful in one LEA where turnkey training and initial administrative purposes resulted in misunderstanding of the model, so that teachers implemented it incompletely. Problems went unrecognized in part because the project was teacher-led, and newly assigned administrative and supervisory staff assumed complete, high-fidelity implementation was occurring. In the other two LEAs, where key teachers had been initially trained by developers, fidelity was good.*

Overall, interactive support and leadership for TV was fairly good. However, in four LEAs central office staff involvement or understanding was low, and in two cases where staff reassignments were made the new coordinators did not resolve problems of fidelity and harmony by the end of the year. Where central office support and involvement were high, fidelity and scope were high and harmony among role groups improved in Year 3. School administrators were involved and well-informed in all but three schools (where principals were newly assigned). While supportive of teachers' efforts in those schools, the principals did not perceive that TV could help them achieve their priorities, and their lack of understanding contributed to very poor implementation in two cases. Teachers worked hard as project leaders and observers. In general

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* Administrative staff of both LEAs were also trained with teachers. In one case, continuity was maintained. In the other case, administrative staff were reassigned. Commitment, scope, intensity, and understanding of the model were better at the former site.

Teachers appeared to be more passive than active since only 52% made changes related to "time," and 35% made changes related to "content."

Outcomes

Participants perceived that TV had an impact on students, teachers, schools, and school systems. No LEA provided student assessment data to support their perceptions. For Year 3 of the study, greatest attention was given to outcomes relating to institutionalization.

Students. All three role groups assigned ratings between "not sure" (3.00) and "agree" (4.00) in relation to TV's impact on students. (See Table 51.) The highest mean score (3.58) was given for improvement of students' behavior. Students understood the "time-on-task" components, and 24% of the survey respondents said that students attended to improving their engagement rates; 12.5% reported improved grades, and 7% said that students' attitude toward learning improved. Engagement rates reported were usually high (above 85%), and ranged from 69.3% (average from four observations of a middle school social studies class), to 91.6% (average of seventeen observations of basic skills in a vocational-technical school). No school system reported achievement data for participating classes.

Teachers. Teachers' knowledge of effective teaching and skill in instruction improved. Peer observation contributed to the professional growth of observing teachers, was considered non-threatening, and facilitated teacher cooperation at one site. However, at another site the observers complained that TV logistics (planning for substitute teachers, scheduling, processing data) took too much time, and teachers observed complained that results were not readily available. Where administrators conducted observations, the focus on students and attention to classroom management were valued, but there were some concerns that the coding was no better than "regular" classroom

Table 51

Instructional Impact as Perceived by
Survey Respondents: Teaching Variables, 1983-1984

Impact on Instruction	Role Groups			
	CO N=7	SA N=15	T N=50	Total N=72
Instructional Value				
Works in classroom	4.43	4.40	4.02	4.14
Is worth the work it takes	4.14	4.40	3.60	3.82
Impact on Teachers				
Teachers enjoy it	3.36	3.60	3.56	3.60
Teachers have increased knowledge	3.86	4.33	3.84	3.94
Teachers have increased skills	4.29	4.27	3.76	3.92
Impact on Students				
Students enjoy it	3.33	3.47	3.48	3.46
Students' achievement has increased	3.57	3.73	3.38	3.47
Students are learning and retaining more	3.29	3.60	3.32	3.38
Students' general behavior is better	3.57	3.73	3.54	3.58
Students are taking more responsibility for their own learning	3.14	3.27	3.35	3.31

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).
CO = Central Office; SA = School Administrators; T = Teachers

observation and that principal support in some schools was low. Impact on teachers was discussed by participants in terms of "time" observations, with two expections where teachers worked together to strategize for improvement and address "content." In all other sites, strategizing appeared to be minimal and was not voluntarily discussed by participants.

Impact on students and teachers combined was defined as instructional gain. An analysis of variance showed significant differences among the four SITIP models on instructional gain. The mean for TV on instructional gain (3.67) was .26 below the group mean for all models combined. There were no significant differences among the TV LEAs and between elementary or secondary schools on instructional gain.

Schools. As indicated in Table 51, educators agreed that TV was worth the work it took. They found that in some schools increased awareness of "time" contributed to an orderly environment, and attention to "content" facilitated coverage of core objectives. Of 59 statements about program benefits, 25% related to logistics, 25% to organizational process, and 21% to the overall instructional program, indicating that TV "fits in" with school practices and contributed to better use of classroom time.

Of 45 negative comments, 40% related to organizational process, indicating a need for improvement of MSDE follow-up workshops and assistance, a need to reduce the frustrations perceived by some teachers, and a need to address the disinterest of some teachers and administrators. The 40% negative comments related to instruction indicated that participants considered time-on-task not to be a problem, or that use of TV had no benefits. These concerns related to outcomes in organization, policy, and process -- indicators of institutionalization.

School organizational outcomes were moderate, with teachers' perceptions lower than ratings by central office staff and school-based administrators on

all areas. Ratings assigned indicate the "health" of TV. (See Table 52.) Project status, participation, and ownership were only slightly established at the LEA where administrative reassignments occurred most and purpose was changed in Year 2. Teacher participation was also low in two other LEAs where purpose was clear and staff stable but initial resistance had not been overcome. "Ownership" was also low in the LEA using the district- wide approach.

Ratings on shared management policies reflect teacher leadership in three LEAs. Decision-making policies were fairly well established, although teachers believed that decisions were data-based only to a moderate extent. (See Table 53.) Very low ratings were assigned on the latter by teachers in the LEA where the project purpose changed.

Procedures used to facilitate institutionalization of TV were moderately established. (See Table 54.) Inservice and staff assignments were only very slightly modified in the LEA where purpose changed.

Low mean ratings on institutionalization indicators, especially when accompanied by low ratings on leadership behaviors, suggested project decline. Such a result was clearly apparent for one LEA. In one other county, it is possible that TV use in specific schools will decline, although the project may survive in the pilot school.

School system. In the LEA with district-wide implementation, system level outcomes were particularly important. They were less important where leadership was school-based.

Institutionalization indicator ratings were all lower than those assigned to schools, with the exception of annual allocation of resources.*

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* Teachers did not rate system factors, therefore scores are not depressed by that role group which consistently assigned lower ratings than did administrative and supervisory staff.

Table 52

Organizational Outcomes: Teaching Variables, 1983-84

Outcomes	School		System	
	N	Mean	N	Mean
Cognitive				
Status of SITIP established	71	3.59	10	3.10
Close to 100% of teachers asked to participate do so regularly	71	3.58	9	2.22
Affective				
Local educators feel "ownership" of SITIP	67	3.06	10	1.90
There is harmony between teachers and school-based administrators about SITIP	71	3.80	7	2.71
There is harmony between school-based and central office staff about SITIP	67	3.24	10	2.90

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 53

Policy Outcomes: Teaching Variables, 1983-84

Policies	School		System	
	N	Mean	N	Mean
Management is shared	21	4.14	10	2.70
Decisions are data-based	70	3.39	10	2.50

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 54

Procedural Outcomes: Teaching Variables, 1983-84

Procedures	School		System	
	N	Mean	N	Mean
Inservice modified to support SITIP	70	3.41	14	2.50
Staff assignments and accountabilities modified	70	3.47	10	2.50
Resources allocated annually	69	3.46	9	3.78
Local funds used	18	3.33	8	2.62

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Organizational outcomes were slight to moderate (Table 52), with the strongest (and most neutral) the establishment of status, and the weakest the sense of ownership. Policy outcomes were slight (Table 53), with particularly low ratings given to data-based decision-making in three LEAs where project leadership was school-based, communication between school and central office was infrequent, and (in two cases) harmony was poor.* Procedural outcomes (Table 54) were also low, with only resource allocation above the moderate level.

Low system level ratings put a greater burden on schools. Ratings given to the "district-wide" LEA, for all factors except "ownership" and use of local funds, indicated that TV was built into operating procedures although still somewhat shaky.

Relationships among outcomes. Data were grouped into the following indices: instructional gain, system institutionalization, school institutionalization, central office support, and school administrator support. Correlational analyses were conducted to determine the relationships among these indices.

Correlations among the five indices showed strong direct relationships ($r \geq .50$) between system institutionalization and central office support and between school institutionalization and two other indices -- school administrator support and instructional gain. Instructional gain was positively related to school administrator support. (See Table 55.)

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* It should be noted that after survey data were collected one LEA (with changing purposes, staff reassignments, and various other environmental turbulences) did make a major data-based decision -- to terminate the project. In the circumstances this was appropriate.

Table 55

Intercorrelations Among Five Indices: Teaching Variables

	1	2	3	4	5
1. Instructional Gain		N.S.	.60	N.S.	.53
2. System Institutionalization			N.S.	.91	N.S.
3. School Institutionalization					.71
4. Central Office Support					N.S.
5. School Administrator Support					

N.S. = Not significant at the .05 level.

Note: The number of cases upon which the correlations were calculated varied.

Influences and Plans

Influences on past implementation and future action included environmental turbulence such as: (1) staff changes resulting in shifts in SITIP leadership; (2) program changes revising priorities or restructuring tasks; and/or (3) organizational changes. They also included the nature and extent of outside (MSDE) assistance, and local perceptions of program success.

Almost all LEAs experienced funding cuts. However, in only one LEA did those cuts negatively influence SITIP in that central office staff reassignments led to reduced involvement. Three other kinds of changes occurred: (1) to staff, resulting in shifts in leadership and decreases in program expertise (in schools of four LEAs, and also at the district office level in two of those cases);* (2) to programs in four LEAs, in three cases slightly restructuring the use of TV and in the fourth combining TV with AT; and (3) to organizational arrangements in five LEAs that resulted in staff changes.

Three LEAs experienced all three kinds of changes. In one, with a district-wide approach, no major negative impact was experienced, partly because only a few sites were affected. In the second, school-based leadership remained constant and was strong enough to overcome the potential loss of energy indicated by the turbulence. In the third, the changes combined with previous setbacks to contribute to project decline.

Turbulence created less of a problem when local perceptions of success were strong. Such a perception was usually a combination of the opinions of teachers (enjoying collegial strategizing to improve instruction) and principals (finding in TV a useful observation process or vehicle to bring staff together around instructional issues). Problems were sometimes alleviated somewhat by outside assistance, but this factor was much less significant.

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* In a third LEA staff changes at the district level increased expertise.

When turbulence occurred and perceptions of success were slight, decline was probable.

By the end of Year 3, the LEA using a district-wide approach had used TV with seven of its eight schools, and planned to continue incorporating "time" observation in supervision of reading, and add that component for mathematics. The five LEAs using other implementation strategies had involved 4.5% of their 229 schools, and all but one planned to continue use of TV in Year 4. Survey respondents indicated specific activities and influential factors, and later (without reference to survey data) plans were submitted to MSDE by project coordinators. For most LEAs, individual responses and coordinators' plans agreed with each other. However, in one LEA survey respondents assumed continuation, but the coordinator decided to terminate the project after reviewing activities and outcomes. Survey responses are summarized in Table 56. In general, most participants (51.4%) planned to maintain their current level of implementation, or allow voluntary use by teachers (35.1%), primarily because they believed that teachers' instructional skills improved. Planned expansion was within schools or to other classes or subjects, rather than to additional schools or models. Support will be somewhat reduced. Plans for reduction were influenced by funding cuts and relatively low staff support. Also, in one LEA, termination was influenced by the belief that almost no change had been made in teachers' behavior (although a great deal of effort had been invested on observations and record-keeping).

Summary and Conclusions

Over the three years, local involvement in TV increased from six to 17 schools, from 51 to 123 teachers, with six LEAs participating in June 1984. In six elementary schools, teachers used TV for reading and/or mathematics; in 11 secondary schools, TV was used for a variety of subjects. The "time"

Table 56

Activities Planned and Influences Perceived
by Teaching Variables Implementers (N=74)

Type of Activities	% Respondents**	% Respondents Per Factor*									
		1	2	3	4	5	6	7	8	9	10
Maintenance											
Maintain current level	51.4	12.6	6.1	2.8	15.4	6.1				1.4	
Allow voluntary use	35.1	1.1	4.2	4.2	12.6				4.2		4.2
Expansion											
Expand classes	24.3		2.8	1.4	15.4	1.4					
Expand schools	16.2	1.4		4.2		2.8					
Add another component of model	1.4					1.4					
Support											
Conduct inservice	12.2				5.6	1.4			1.4		
Provide resources	18.9	2.8	1.4	1.4	9.6	1.4	1.4				
Reduction											
Discontinue SITIP	1.4						6.9	1.4	6.9		
Reduce activity by 25% or more	1.4						1.4				
Totals		18.2	14.5	14.0	58.6	14.5	9.7	1.4	12.5	1.4	4.2

* Ten factors were listed on the survey, of which eight were indicated as influential in planning by some respondents.

1. High student achievement data indicate SITIP value.
2. SITIP helps achieve a local priority.
3. Students and staff like SITIP.
4. Teachers' instructional skills improve with SITIP.
5. Senior administrators advocate SITIP.
6. Funding cuts: other things take priority over SITIP.
7. SITIP is not cost-effective
8. There is little staff support for SITIP.
9. Senior administrators have little interest in SITIP.
10. SITIP has very little to do with local priorities.

** Many respondents checked more than one type of plan.

variable was used more than "content," and while fidelity of data collection was high, application of other components of the model varied among schools, and understanding of the concepts and strategies for improvement was low in some cases.

In two LEAs, and one of the schools in a third district, teachers ran the project and conducted "time" observations. Administrative and supervisory staff conducted observations and provided leadership in other sites. In each site, a particular role group was primarily responsible for project management, with others providing support and apparently not challenging what was done; this may have contributed to implementation that was incomplete or shallow in those sites where there was misunderstanding.

Impact on teachers was perceived to be greater than impact on students. Overall instructional gain was low with no significant differences among LEAs or types of schools. Organizational, policy, and procedural outcomes were moderate and plans for the 1984-85 school year indicated maintenance rather than expansion, with the project being terminated in one LEA. School institutionalization was correlated with principal support and instructional gain. District institutionalization was correlated with central office support. The mean rating across LEAs for the latter was relatively low.

Over the three years, each district experienced some form of environmental turbulence, and was influenced by the nature and extent of support (including training) provided by MSDE and TV developers. Negative influences (experienced by at least two LEAs) included: (1) initial developer training that was intense and particular, focusing on data collection rather than on improvement strategies; (2) assistance from MSDE that attended more to process than to the model and the concepts of effective instruction; (3) assistance from the developer that repeated the "time" training, advocated an application

to administrators and supervisors with one-on-one feedback of data (a switch from the initial group strategizing approach), and provided minimal help to secondary schools; (4) changes in project purpose or organization that contributed to complexity, resistance, and confusion; (5) staff reassignments resulting in loss of leadership expertise; and (6) poor understanding or little request for information by local educators resulting in incomplete or superficial use of the model. Positive influences (experienced by at least two LEAs) included: (1) local use of the model (with fidelity) to accomplish an existing school priority; (2) acquisition, by LEAs, of information and training to clarify or expand the model knowledge base (from the developer and MSDE); (3) stability and expertise of local leadership, with press for fidelity and attention to application of improvement strategies; and (4) clear stable purpose, acceptable to teachers.

In one district, combined forces contributed to project termination.* Decline is possible in two other LEAs where administrative support is low. It is probable that the level of implementation apparent in June 1984 in the seven schools where TV is used district-wide, and in five other schools, will become routinely integrated into school activities. However, in two schools with teacher observers, reduction in resource allocations would jeopardize implementation.

While in Year 3, MSDE advocated local ownership, it may be advisable for TV project teams to review progress and request additional assistance for

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* Local purpose did not facilitate TV fidelity, staff reassignments (five) resulted in loss of administrative expertise, and project modification was too late and with insufficient press for fidelity and completeness to be of value. Educators wanted success, provided resources, and worked hard and sincerely, but achieved virtually nothing. The decision to terminate is in keeping with MSDE's recommendation to make data-based decisions, not allowing continuation of poorly implemented projects.

Year 4. Such assistance might give strong attention to classroom improvement -- real changes made by teachers -- and the "fit" of local purpose with the model, how it is used, and results to date. While some schools (in Calvert and Montgomery) experienced some success, many did not, and if greater instructional gain is not apparent, school institutionalization is unlikely.

Review Across Models

This section summarizes and compares findings across the four instructional models. Discussion focuses on planning; the scope, intensity, and fidelity of use; the roles and responsibilities of implementers; the outcomes in terms of impact on students, teachers, schools, and school systems; and influences and plans for Year 4. Some conclusions are drawn and recommendations made.

Planning

Table 57 presents the status of objectives in June 1984 across all SITIP projects. The number of projects for each model addressing a given objective is stated. The percent of projects (across models) and the degree of achievement is also stated for each objective. Improvement in student achievement was addressed by most projects, with 45% claiming accomplishment, and 48% considering the objective partly achieved. Partial or full achievement of objectives relating to teacher competence and classroom organization (#5 and #7) was claimed by 96% and 100%, respectively. Results were influenced not only by successful implementation, but also by the extent of expansion, since the greater the expansion the less total achievement of project objectives could be claimed. In general, progress was made over the three years, and plans developed by most LEAs were modified annually reflecting the relative success of previous years.

Table 57

Status of Local Objectives: All Models, June 1984

	Number of Projects Addressing Objectives					Percent of Projects Achieving Objectives*		
	Total	AT	ML	STL	TV			
	N=30	N=9	N=8	N=6	N=7	1	2	3
1. Improve student achievement (basic skills).	27	8	7	6	6	7	48	45
2. Improve student achievement (other subjects).	22	6	5	5	6	23	45	32
3. Inform local educators about model.	26	7	7	6	6	11	31	58
4. Train educators about model.	26	8	6	5	7	15	50	35
5. Improve teachers' classroom competence.	24	7	6	5	6	4	63	33
6. Ensure match of instruction, curriculum, and tests(s).	20	4	6	5	5	0	45	55
7. Help teachers become better organized.	26	8	6	5	7	0	65	35
8. Improve time-on-task.	24	8	5	4	7	4	58	38
9. Improve students' involvement in learning (motivation).	25	7	6	6	6	8	52	40

* 1=Hoped for
2=Partly achieved
3=Achieved

Scope, Intensity, and Fidelity of Use

Influenced by the strategy of implementation used and by administrators' investment of time and interest, the dimensions of scope, intensity, and fidelity indicate the nature and extent of use.

Scope. The scope of implementation by LEAs in June 1984 is presented in Table 58 and is summarized in Table 59. The 23 of 24 LEAs in the state receiving SITIP funds are listed. Since several LEAs implemented more than one model, there were more than 23 projects. Since each LEA determined its own allocation of SITIP funds, multiple projects within a district were not necessarily equally funded, nor given equal attention. The strategies presented relate to those employed in Year 3. The strategies used were sometimes different from those originally planned, expanding in seven cases from a lighthouse school approach to a pilot/district approach, and in two cases reducing to a lighthouse approach. Expansion was influenced by local success (usually as perceived by administrators). Reduction (or termination) occurred due to minimal impact of SITIP (usually influenced by the processes the LEA elected to use and environmental turbulence). All types of schools were involved, including two vocational-technical centers, ranging from a single school in one LEA to 33 schools in another. As few as four teachers were involved in a project to as many as 700. The number of students ranged from 113 to 22,594.*

Overall, more than 74,000 students were involved. The 182 schools monitored by the study represented about 16% of Maryland's schools. More than 51% were elementary, usually involving students in grades 3 through 5. Both

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* In Charles and Calvert counties, only the classes at the pilot schools were monitored, so the number of students reported is probably much lower than occurred in practice.

Table 58

Scope of Implementation by LEA: All Models, June 1984

LEA	Model	Strategy	#of Schools	Type	#of Teachers	#of Students
Allegany	ML	LS	2	O	18	350
Anne Arundel	ML	LS	1	H	5	300
Baltimore City	ML	PD	28	J/M,H	606	22,594
Baltimore County	ML	PD	6	E	32	1,094
Calvert	STL	PD	3	E,J/M	13	375
	TV	PD	3	J/M	18	468+*
Caroline	AT	PD	7	E,J/M	85	2,695
Carroll	ML	PD	5	J/M	7	700
Cecil	AT	PD	25	E,J/M,H	700	13,000
Charles	STL	CB	15	E,J/M,H	116	650+*
Dorchester	STL	PD	4	E	16	425
Frederick	TV	LS	2	J/M	14	350
Garrett	AT	LS	3	J/M,H	20	1,000
Harford	AT	DW	33	E,J/M	671	18,650
Howard	ML	PD	6	E,J/M	35	1,500
Kent	TV	DW	7	E,J/M	52	1,561
Montgomery	AT	LS	1	E	8	250
	STL	LS	1	J/M	7	350
	TV	LS	2	E,J/M	14	400
Queen Anne's	STL	CB	2	J/M,H	23	800
St. Mary's	AT	CB	7	E,J/M,H	62	1,500**
Somerset	AT	LS	1	E	10	300
	TV	LS	2	E,H	12	420
Talbot	TV	LS	1	O	13	250
Washington	AT	LS		No Data		
	ML	LS		No Data		
	STL	CB		No Data		
Wicomico	AT	DW	16	E	154	3,850
Worcester	ML	LS	1	E	8	240
	STL	LS	1	E	4	113

* At pilot middle school.
** Includes some duplicates.

Model: AT=Active Teaching
ML=Mastery Learning
STL=Student Team Learning
TV=Teaching Variables

Strategy: LS=Lighthouse school
PD=Pilot district
DW=District wide
CB=Capacity building

Type: E=Elementary school
J/M=Junior high/middle school
H=High school
O=Other

Table 59

Summary of Scope of Implementation: All Models, June 1984

Model	Projects		Schools		Teachers	
	N=	%	N=*	%	N=**	%
Active Teaching	9	31	E 65 S 28 93	51	1710	62
Mastery Learning	8	27	E 10 S 37 O 2 49	27	711	26
Student Team Learning	6	20	E 15 S 11 26	14	200	7
Teaching Variables	6	20	E 6 S 10 O 1 17	9	123	5
Total	29	100	E 96 S 86 O 3 185	100	2744	100

* Three schools (two elementary and one secondary) are implementing two models.

** Eighteen teachers are implementing two models.

School: E = Elementary
S = Secondary
O = Other

Note: No data available for Washington County (Active Teaching and Mastery Learning).

junior/middle and senior high schools were included in the 85 secondary schools. About 2,744 teachers used one or more models: additional teachers were trained within LEAs and used SITIP ideas at their own discretion. A comparison across models indicates that Active Teaching and Master Learning were the most widely used (impacting about 56% and 36%, respectively, of SITIP students), and Student Team Learning and Teaching Variables were the least widely used (impacting about 4% and 5%, respectively, of SITIP students). While the relative simplicity of AT facilitated expansion, complexity was not a deterrent for a successful model: Mastery Learning was used by 27% of the SITIP schools.

Intensity. The average number of years that teachers were involved in SITIP was 1.6 for AT, 1.8 for ML, and 1.9 for STL and TV. (Mean times were depressed by the number of teachers in expansion sites.) During the 1983-84 school year, teachers used STL for an average of five months, ML and TV for seven months, and AT for close to nine months. AT and ML teachers used the models for a larger percentage of their in-class time (an average of 51% and 43%, respectively) than teachers using TV (36%) and STL (19%). Consistent use facilitated instructional gain.

Fidelity. Each model required the implementation of certain components. (See Figure 2 for components and extent of fidelity.) More teachers (91%) implemented all critical components of the AT model than did the implementers of the other three models (ML -- 62%, STL -- 59%, TV -- 46% "time", 18% "content"). With the exception of ML, which was second only to TV in complexity, the more complex the model was to implement, the less the degree of fidelity. The degree of fidelity was also related to the extent of administrator "press" for fidelity of implementation. In those LEAs where administrators encouraged and expected to see fidelity of implementation, more teachers implemented all

Figure 2

SITIP Fidelity of Implementation: All Models 1983-84

Models and Components of Student Team Learning*	Teachers Implementing N=38	%
STAD is implemented.	26	68
TGT is implemented.	22	58
Jigsaw is implemented.	11	29
TAI is implemented.	0	0
1. Each team includes a mix of kinds of students (on given criteria).	35	92
2. Materials are available for peer tutoring, team practice, and individual and tournament quizzes.	31	82
3. Quiz/tournament scores relate to individual and team achievement.	31	82
4. Peer tutoring takes place a great deal.	33	87
5. Successes are publicized.	32	84
All five components.	23	59

Variables and Components of Teaching Variables*	Teachers Implementing N=46	%
The "content" variable is implemented.	24	52
The "time" variable is implemented.	36	78
1. Time on task data have been collected on my class		
- by my principal	26	57
- by a central office supervisor	16	35
- by a teacher.	27	59
2. Observation results are discussed in staff meetings and we help each other find strategies to improve time-on-task.	16	35
3. Observation results are discussed by me and the observer and we agree on improvement strategies (if needed).	31	67
4. Data collected on my class indicated that time-on-task was such that I did not need to make changes.	26	57
5. I have made changes in my class to improve time-on-task.	24	52
6. Data collected on my class indicated that time-on-task improved.	20	43
7. We used the "content" variable, matching curriculum, instruction, and the CAT.	21	46
8. For the "content" variable, I knew what my students had been taught and what their test scores were for last year.	15	33
9. For the "content" variable, I modified curriculum and/or instruction.	16	35
10. For the "content" variable, I kept records of content covered by objective for each report period.	17	20
All three "time" components (1, 2 or 3, 4 or 5).	21	46
All four "content" components (7-10).	9	18

Components of Mastery Learning	Teachers Implementing N=68	%
1. Objectives are specified.	68	100
2. Objectives are broken down into component skills.	65	96
3. Curricula (texts, materials) are matched to objectives.	64	94
4. Instruction matches curricula and objectives.	65	96
5. Tests match objectives.	67	98
6. Tests include items from both lower and higher order thinking skills.	56	82
7. A "no fault" formative test is given for each unit.	61	90
8. "Corrective" and "enrichment" activities are given after formative tests.	67	98
9. Summative tests are given at the end of each unit.	66	97
10. Records on level of mastery are kept per class per student per objective.	59	87
All ten components.	42	62

Components of Active Teaching	Teachers Implementing N=90	%
1. Homework review and oral questioning.	88	98
2. Skill review and presentation of new material.	90	100
3. Guided practice.	89	99
4. Independent practice.	87	97
5. Homework assignments.	88	98
6. Weekly, monthly, end of unit reviews.	83	92
All six components.	82	91

* For Student Team Learning and Teaching Variables, unnumbered items represent specific models or variables. Implementers could use any one or all models or variables.

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components of the model. Such "press," plus the support provided in Years 2 and 3, probably facilitated the fidelity and intensity of ML (overcoming the uncertain implementation experienced in some LEAs in Year 1).

Administrative investment. The average amount of time invested by a SITIP administrator during Year 3 was 21.05 days, with means ranging from 16.45 days for AT to 26.65 days for ML. While overall means differed little between the two administrative role groups, there were differences among models, with central office staff investing more time than school-based administrators only for AT. For three models, one administrative role group invested, on average, about twice the time invested by the other role group. (TV was the exception where investments were similar). Activity areas, in order of priority allocation of time, included: (1) inservice, (2) general support, (3) administration/communication, (4) monitoring/evaluation, and (5) dissemination/expansion. While inservice and support were top priorities for three models, top priorities for TV were administration/communication, and monitoring/evaluation. Time investments and priorities were influenced by the nature of the model and the scope of implementation. Results suggest that success (in terms of instructional gain or institutionalization) is facilitated by administrative involvement in inservice and general support.

In general, the quality of implementation varied. While there were some exemplary sites for all models, there were other sites where fidelity was low, or application was sporadic. Poor implementation was characterized as infrequent use of a model, pro forma application of parts of a model, lack of actual change in classroom behavior, or isolated teachers carrying out an adaptation as best they could. Excellent implementation was characterized by definable changes in classroom behavior, increased student time-on-task directly linked with aligned curriculum and quality instruction, use of the

model regularly and/or for a complete unit or course, and data-based decision-making. Administrators were well informed, supportive, and expressed clear expectations of fidelity and intensity in the si es where better implementation occurred.

Roles and Responsibilities

The SITIP design encouraged participatory decision-making and involvement of all three instructional role groups in an LEA. By the end of Year 2, it was apparent that: (1) teachers involved in MSDE training activities sometimes became instructional leaders, and all teachers involved in SITIP needed time to develop materials to be used in support and assistance of implementation; (2) school-based administrators involved in MSDE training activities were more committed than those trained by LEAs, and all needed to support teachers' efforts for success; and (3) central office staff, after MSDE training, determined their roles by the extent to which a model met local priorities, contributing most effort through inservice or general support, but contributing relatively little (e.g., only administration) when a lighthouse strategy was used or a model was perceived as more teacher-centered.

In Year 3, participants, particularly the LEA teams that initiated local projects, were aware of each other's relative success and the processes and factors that inhibited or facilitated that success. They were advised by MSDE to consolidate successes, make appropriate revisions, and make data-based decisions to terminate or institutionalize as state funds were withdrawn. Particular attention was to be paid to interactive support and leadership.

Interactive support. Support among LEA participants included exchanging information and materials; providing training, coaching, and trouble-shooting; managing logistics; and recognizing successes. Support from MSDE and developers consisted primarily of training, technical assistance, networking,

and trouble-shooting. Survey respondents' ratings of support are presented in Table 60. As in previous years, the effects of visibility (frequency and accessibility of interactions) were apparent, with higher ratings awarded to role groups more visible to teachers. When several role groups were fairly equally visible, expertise and affective and logistical support influenced ratings. In general, developers, who interacted very little with local educators, received the lowest ratings, although STL developers, who were the most visible, were rated slightly lower than ML developers. Overall, MSDE staff received the next lowest ratings (all above average) with the expertise of ML TAs and the locally-responsive networking style of the STL TAs being well-perceived. While school-based administrators were rated somewhat higher than central office staff overall, the range for the latter group across models was much wider than for the former. This indicated that school-based administrators played similar roles, regardless of the model, but roles played by central office staff differed by model in visibility and demonstration of expertise and in affective and logistical support. Support by teachers was rated most highly overall, with lower ratings for AT (which was the least complex model), and TV (which made the least demands on non-observing teachers), and higher ratings for STL (which was teacher-led in many districts), and ML (which was the most complex model and made considerable demands on teachers).

In comparison to Year 2, overall ratings for each role group were slightly lower, suggesting the diminution of energy which might be expected as institutionalization occurs. Slight increases were awarded to teachers for STL and TV, and to central office staff for ML, which related to extra investments of

Table 60

Perceptions of Support Received: All Models, 1983-84

Models	N	Support Groups: Teachers	School Administrators	Central Office Staff	MSDE	Developers
Active Teaching	112	3.66	3.76	3.11	3.05	2.49
Mastery Learning	89	4.07	3.74	3.93	3.52	3.15
Student Team Learning	48	4.18	3.73	3.67	3.33	3.13
Teaching Variables	70	3.78	3.75	2.92	3.20	3.26
Totals	319	3.88	3.75	3.39	3.25	2.72

Mean ratings range from a low of 1.00 (poor) to a high of 5.00 (excellent).

effort which they made. Below average ratings awarded to TV central office staff were related to the fact that was that that role group was involved in the projects in only two of the TV LEAs.

Administrative leadership. Affective and logistical leadership behaviors are presented in Table 61, together with ratings assigned to central office staff and school-based administrators for each of the models. Overall ratings for central office staff ranged from 2.49 (press for fidelity) to 3.99 (demonstrate commitment). Overall ratings for school-based administrators ranged from 2.63 (press for fidelity) to 4.23 (demonstrate commitment). For both role groups, affective behaviors were more evident than logistical behaviors, and organizational process behaviors were more evident than those related to "press." With the exceptions of central office staffs' data-based decision-making, and school administrators' press for fidelity and intensity, all ratings for leadership behaviors were lower for TV than for other models. For all models except ML, ratings were higher for school administrators than for central office staff.

In all cases, affective leadership behaviors were above average.

Logistical leadership behaviors relating to the organizational processes of provision of assistance, coordination of communication, and implementation of data-based decision-making, were above average with exceptions for the last three behaviors for central office staff in AT, and for communication behaviors for TV. Press for fidelity and intensity were above average only for AT by school administrators.

An analysis of variance showed significant differences between the four models on central office support (see Table 62). TV had the lowest, and ML had the highest mean on this index.

Table 61

Administrative Leadership Behaviors: All Models, 1983-84

Behaviors	Mean Ratings Assigned									
	To Central Office Staff					To School Administrators				
	AT N=94	ML N=81	STL N=43	TV N=53	all N=271	AT N=100	ML N=83	STL N=48	TV N=60	all N=291
Affective										
Demonstrate commitment	4.06	4.35	3.93	3.35	3.99	4.55	4.17	4.00	3.95	4.23
Provide support	3.45	4.06	3.74	3.11	3.61	4.12	3.98	3.82	3.80	3.97
Logistical										
Press for fidelity	2.77	2.64	2.16	2.04	2.49	3.02	2.72	2.10	2.23	2.63
Press for intensity	2.95	2.69	2.33	2.04	2.59	3.28	2.80	2.30	2.32	2.79
Provide assistance	3.39	4.16	3.86	3.00	3.61	3.80	4.09	3.83	3.62	3.85
Coordinate LEA communication	2.97	3.76	3.59	2.69	3.25	3.19	3.40	3.40	3.00	3.25
Coordinate school communication	2.81	3.61	3.37	2.68	3.11	3.57	3.55	3.40	3.30	3.48
Implement data-based decision-making	2.76	4.04	3.30	3.88	3.47	3.09	3.71	3.24	3.17	3.31

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

AT=active teaching; ML=Mastery Learning; STL=Student Team Learning; TV=Teaching Variables.

Table 62

ANOVA Results for Central Office Support

Factor	N	$\bar{X}$	F	df	p
1. Model	228	3.30	9.19	3/224	.001
AT	77	3.12			
ML	65	3.77			
STL	37	3.46			
TV	49	2.84			
2. Strategy	228	3.30	10.14	3/224	.001
Lighthouse school	87	2.86			
Capacity building	21	3.19			
Pilot district	91	3.64			
District-wide	29	3.64			

AT = Active Teaching; ML = Mastery Learning;
STL = Student Team Learning; TV = Teaching Variables

There also were significant differences between the four implementation strategies on this index (see Table 62). The lighthouse school strategy had the lowest mean, and the pilot/district and district-wide strategies had the highest means on central office support.

There were no significant differences between models or strategies on school administrator support. Given the relative success of models and projects (in terms of instructional gain and organizational outcomes), it was clearly desirable for both role groups to put into practice to a large extent affective behaviors and logistical assistance, for school administrators to put into practice all other behaviors to some extent (at least average), and for central office staff to implement those behaviors to some extent if there were to be more than lighthouse school projects.

"Press" indicated administrative expectations of fidelity and intensity, without which teachers could assume that it was acceptable for them to make little or no change. Low administrative press was related to low success and potential project decline.

In several LEAs, leadership was undertaken by teachers (with administrative support). In some cases, teams of key teachers conducted training and coaching, and, for TV, conducted classroom observations. In other cases, individual teachers ran the project, usually in a single school, but in one case across the LEA (with release time to do so). The strongest leadership behaviors of teachers/leaders were provision of assistance (when they had been trained at MSDE events), and support (when they believed in the model and had release time to help their colleagues). The weakest behaviors were coordination among schools (when they had insufficient release time and little influence on other schools), and press for fidelity (when they had low

expertise in the model or in influencing others). In order to be effective, teacher leaders had to have real expertise in the model and strong administrative support.

Overall interactive support and leadership were good, and for most projects improvements were made over the three years. However, there were problems if reassignments resulted in leaders who lacked expertise or commitment,* if central office staff functioned only as administrators, if principals had priorities addressed by activities very different from SITIP, or if teachers were expected to do most of the work with little support. In contrast, where project teams remained stable and project management tasks were shared, where leadership behaviors were above average, and where expertise in the model helped achieve an existing priority, implementation was smoother, impact was more evident, and institutionalization more probable.

Outcomes

Institutionalization of successful projects was the desirable outcome for Year 3, and indicators were identified to determine the extent to which that was occurring. In addition, impact on students and teachers was assessed to determine instructional gain.

Students. As indicated in Table 63, students enjoyed SITIP classes (with STL being most popular), increased their achievement (most obviously in ML), retained more of what was taught (most obviously for AT), took somewhat more responsibility for their own learning (more so for AT), and, in general, behaved a little better (more so for AT). Empirical data -- summaries of

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* Multiple reassignments -- several key staff changed in one year, or project leadership changed each year -- resulted in loss of expertise and momentum, contributing to project decline.

Table 63

Instructional Impact as Perceived by Survey Respondents: All Models, 1983-84

Impact on Instruction	Models				
	AT N=124	ML N=97	STL N=54	TV N=72	TOTAL N=347
Instructional Value					
Works in the classroom.	4.50	4.35	4.33	4.14	4.36
Is worth the work it takes.	4.29	4.05	3.96	3.82	4.14
Impact on Teachers					
Teachers enjoy it.	4.06	4.02	4.02	3.60	3.94
Teachers have increased knowledge.	4.01	4.24	3.96	3.94	4.02
Teachers have increased skills.	4.05	4.19	3.77	3.92	4.02
Impact on Students					
Students enjoy it.	3.99	4.13	4.47	3.46	4.00
Students' achievement has increased.	3.87	4.04	3.69	3.47	3.81
Students are learning/retaining more.	3.89	3.79	3.63	3.38	3.72
Students' general behavior is better.	3.70	3.55	3.60	3.58	3.62
Students are taking more responsibility for their own learning.	3.56	3.73	3.77	3.31	3.59

Mean ratings range from 1.00 (strongly disagree) to 5.00 (strongly agree).

AT = Active Teaching; ML = Mastery Learning; STL = Student Team Learning; TV = Teaching Variables.

results of standardized tests and analyses of student progress comparing SITIP classes and non-SITIP classes -- supported educators' perceptions that student achievement was significantly higher when AT or ML was implemented, particularly in mathematics. No standardized test data were provided for STL or TV.

Teachers. Teachers' knowledge of effective teaching and skill in instruction improved.

Impact on teachers and students combined was defined as instructional gain. A one-way analysis of variance showed significant differences between the four models on instructional gain (see Table 64). TV differed from the other models on this index. Results showed that the mean for TV: (1) had the largest deviation from the total group mean, and (2) was the only model mean lower than the group mean.

Table 64

ANOVA Results for Instructional Gain: All Models

Factor	N	$\bar{X}$	F	df	p
1. Model	335	3.93	4.65	3/331	.003
AT	124	4.00			
ML	93	4.01			
STL	51	3.96			
TV	67	3.67			
2. School Type	320	3.92	8.85	1/318	.003
Elementary	160	4.03			
Secondary	160	3.81			

AT = Active Teaching; ML = Mastery Learning;
STL = Student Team Learning; TV = Teaching Variables

There were also significant differences between elementary and secondary schools on instructional gain. The mean on this index was significantly lower for secondary schools than for elementary schools. (This may have been influenced by the fact that SITIP models were more often used in the latter for basic skills.)

Schools. As indicated in Table 63, educators agreed that the SITIP models worked in the classroom (with AT most strongly affirmed), and that they were worth the work they took (with strongest agreement apparent for AT).

School organizational outcomes were fairly good, although local "ownership" was only moderate (see Table 65). Policy outcomes (Table 66) indicated that shared management and data-based decision-making were more apparent for SITIP than for other programs. Procedural outcomes (Table 67) indicated that modification of inservice and staff assignments were occurring to a greater extent than allocation of resources and use of local funds. However, other data sources indicated that most LEAs made significant in-kind contributions.

The three sets of outcomes -- organizational, policy, and procedural -- made up the indicators for school institutionalization. An analysis of variance showed that there were no significant differences between models or strategies for school institutionalization.

A multiple regression analysis was conducted to determine which indices (instructional gain, central office support, school administrator support, or fidelity) were the best predictors of school institutionalization.* Together, the four indices explained approximately 48% of the variance in school institutionalization, which was significant at the .05 level. The strongest

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* Seventy-three teachers responded to all five indices and were included in the calculation.

Table 65

Organizational Outcomes: All Models, 1983-84

Outcomes	School N=310	System N=55
Cognitive		
Status of SITIP established	3.76	3.83
Close to 100% of teachers asked to participate do so regularly	3.61	3.35
Affective		
Local educators feel "ownership" of SITIP	3.27	3.24
There is harmony between teachers and school-based administrators about SITIP	3.87	3.78
There is harmony between school-based and central office staff about SITIP	3.63	3.95

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 66

Policy Outcomes: All Models, 1983-84

Policies	School		System	
	N	Mean	N	Mean
Management is shared	76	3.96	58	3.50
Decisions are data based	313	3.49	57	3.51

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

Table 67

Procedural Outcomes: All Models, 1983-84

Procedures	School		System	
	N	Mean	N	Mean
Inservice modified to support SITIP	309	3.75	64	3.61
Staff assigments and accountabilities modified	317	3.73	57	3.35
Resources allocated annually	315	3.50	57	3.68
Local funds used	70	3.07	51	3.15

Scale ranges from 1.00 (not at all) to 5.00 (to a very large extent).

predictor of school institutionalization was school administrator support, followed by instructional gain (see Table 68). School institutionalization was also strongly correlated with central office support (see Table 69).

Table 68

Multiple Regression Results for School Institutionalization

Index	B	F
School administrative support	.4928	27.320*
Instructional gain	.2365	5.614*
Central office support	.1183	1.364
Fidelity	.0732	.563

R^2 = .47884
Overall F = 17.538*
N = 73
*p = less than .05

School system. Institutionalization indicators of outcomes relating to organization, policy, and procedures at the system level are presented in Tables 65, 66, and 67, with ratings given only by administrative and supervisory staff. In comparison to the school level, ratings assigned for the system level for the status of SITIP and for school and system harmony were somewhat higher. Also slightly higher at the system level were data-based decision-making, allocation of resources, and use of local funds. Of some concern were the extent of teacher participation, local ownership, modification of staff assignments, and use of local funds (although the ratings on the latter were somewhat misleading given the considerable investments of in-kind contributions). It should be noted that system-level outcomes were less

important in LEAs focusing on a lighthouse school approach. However, from an overall cost-effective perspective, higher ratings were desirable since they indicated greater likelihood of district-wide institutionalization.

Correlation among the five indices showed strong direct relationships ($r \geq .50$) between system institutionalization and two indices -- central office support and school institutionalization (see Table 69).

Table 69

ANOVA Results for System Institutionalization

Factor	N	$\bar{X}$	F	df	p
Strategy	48	3.60	10.76	3/44	.001
Lighthouse school	12	2.51			
Capacity building	4	3.73			
Pilot/district	24	4.01			
District-wide	8	3.95			

An analysis of variance showed significant differences between the four implementation strategies on system institutionalization (see Table 70). Results showed that the mean for the lighthouse school strategy: (1) had the largest deviation from the total group mean, and (2) was the only strategy mean lower than the group mean.

There were no significant differences between the models on system institutionalization.

Table 70

Intercorrelation Among the Five Indices: All Models

Index	1	2	3	4	5
1. Instructional Gain		.44	.34	.23	.26
2. System Institutionalization			.67	.80	.42
3. School Institutionalization				.51	.68
4. Central Office Support					.45
5. School Administrator Support					

Note: The number of cases upon which the correlations were calculated varied.

Influences and Plans

Table 71 presents activities planned and influences perceived across all SITIP models. Maintenance and minimal expansion (to other classes or subjects) were the most prevalent activities, with 57.35% respondents planning the former, and 36.93% planning the latter. Expansion by adding components (e.g., for STL or TV) or models was not likely (4.67% and 2.60%, respectively), and neither was reduction (2.33% suggesting termination and 2.65% suggesting a 25% project reduction).

The single strongest influence on plans was student achievement results (62.91%), followed by improvement in teachers' instructional skills (49.65%). Achievement of a local priority and liking for SITIP were about equally influential. The strongest negative influences were funding cuts, with other things taking priority over SITIP (indicated by 3.85% of the respondents), and lack of staff support (2.97%). Less than 10% of the local respondents identified negative influences on any planned activities.

In addition to the influences discussed above, three kinds of environmental turbulence led to changes during implementation which influenced relative success. In some cases, funding cuts stimulated the changes.

Table 71

Activities Planned and Influences Perceived by Implementers: All Models (N=344)

Type of Activity	% Respondents Planning*	% Respondents Indicating Influential Factors**									
		1	2	3	4	5	6	7	8	9	10
Maintenance											
Maintain current level	57.35	26.81	7.04	10.35	13.73	5.76				.30	
Allow voluntary use	21.80	14.39	2.05	6.26	5.06				.90		.90
Expansion											
Expand - classes,	36.93	10.31	3.57	7.85	11.29	.87		.28			
Expand - schools	12.80	2.04	2.36	1.44	2.02	1.78					
Add component	4.67	1.75	11.69		1.16	.60					
Add a new model	2.60	1.17	.27	.60		.27					
Support											
Conduct inservice	17.45	2.03	2.61	1.17	7.91	1.14	.30		.30		
Provide resources	22.07	4.41	2.33	2.35	8.48	2.03	.60	.28			
Reduction											
Discontinue SITIP	2.33						1.78	.60	1.77		
Reducte activity by 25% or more	2.65										
Totals		62.91	31.98	30.02	49.65	12.45	3.85	1.16	2.97	.30	.90

* Many respondents checked more than one type of plan.

** Influential Factors:
1. High student achievement data indicate SITIP value.
2. SITIP helps achieve a local priority.
3. Students and staff like SITIP.
4. Teachers' instructional skills improve with SITIP.
5. Senior administrators advocate SITIP.
6. Funding cuts: other things take priority over SITIP.
7. SITIP is not cost-effective.
8. There is little staff support for SITIP.
9. Senior administrators have little interest in SITIP.
10. SITIP has very little to do with local priorities.

However, even when that was so, the negative impact was reduced when staff commitment and instructional gain were high enough to stimulate the extra effort needed to overcome cutbacks and setbacks. The three kinds of changes were: (1) staff reassignments resulting in shifts in leadership (which were negative when expertise was lost or communication lags occurred); (2) program changes revising priorities (often positive when SITIP was expanded, sometimes negative if administrators involved teachers in multiple projects); and (3) organizational changes (negative when SITIP leaders received additional assignments or participants had to learn new systems). When two or more kinds of changes occurred and perceptions of SITIP value were low, the project was likely to decline. However, even when high environmental turbulence occurred, projects survived and made progress when scores were high on the five key indices of successful implementation: system institutionalization, central office support, school administrator support, school institutionalization, and instructional gain.

In Year 4, the indicators of administrative support and of institutionalization may be used by local educators in self-assessment, and efforts invested as needed to make improvements if projects are to be effectively integrated into existing systems. If there is little or no instructional gain, it might well be appropriate for projects to be terminated.

In Year 4, 21 LEAs will receive state funds to support maintenance and expansion of SITIP projects. In most cases (exceptions include Baltimore City and Baltimore County), new schools will not be added, but additional teachers may become involved and current participants will receive additional training and support. To date, it appears that local educators have given SITIP a fair trial, with some LEAs contributing a great deal more than they felt they

received from MSDE. Where their experience indicated that the SITIP models did not meet their needs (or their implementation strategy and processes did not facilitate success), LEAs did not expand, and three terminated. Where instructional gain was apparent and administrative leadership and support helped accomplish outcomes relating to organizational, policy, and procedural outcomes, institutionalization was more likely. Overall, all LEAs benefited in some way from their involvement.

SUMMARY AND CONCLUSIONS

Each of the two preceding chapters has included a summary of findings, and various sections of the report have provided background information. Rather than repeat those discussions, this chapter attempts to answer questions most often posed by researchers, policy makers, and practitioners who are interested in large scale instructional improvement. Most such questions are contained in the overall question:

- If the "bottom line" is instructional gain, and if that is accomplished by bringing about long-lasting, worthwhile changes in teachers' behavior, what are the processes and content to be applied by large systems such as state departments or large school districts?

Since SITIP was informed by the research on classroom and school effectiveness and planned change, the authors of this report believe that the processes, findings, and conclusions are generalizable, and may well prove to be useful to those involved in similar projects elsewhere.

<u>If an instructional improvement program is initiated, what indices should be monitored to gauge the "health" of the program and the probability of eventual institutionalization</u>?

- Indicators of program fidelity and intensity include:

  1. The extent to which participating educators carry out critical components of the program regularly and/or continuously.

- Indicators of instructional gain include:

  1. Impact on teachers: increase in knowledge and skills, positive attitude to the program.

  2. Impact on students: increase in achievement, learning, and retention; improvement in general behavior and the extent to which they take responsibility for their own learning; a positive attitude toward the program.

- Indicators of administrative support include:*

  1. Affective behaviors that...

     (a) demonstrate commitment and belief in the program's value

     (b) provide support by demonstrating interest and recognizing teacher success.

  2. Such logistical behaviors as...

     (a) a "press" for fidelity, monitoring implementation, and expecting a given level of use of the program

     (b) a "press" for intensity, monitoring implementation, and helping to ensure that at least three teachers in each participating school use the program regularly

     (c) providing assistance by coordinating, training, responding to requests, and providing resources

     (d) coordinating communication across hierarchical levels for program review and improvement

     (e) implementing data-based decision-making.

- Indicators of institutionalization include:

  1. Organizational outcomes

     (a) cognitive: the status of the program is commonly understood, clearly stated, and close to 100% of teachers asked to participate do so regularly

     (b) affective: local educators feel "ownership" of the program; there is harmony between teachers and school-based administrators about the program; and there is harmony between school-based staff and central office staff about the program.

  2. Policy outcomes

     (a) management (leadership, advocacy, decision-making) is shared, not reliant on a single administrator

     (b) effectiveness is assessed and data are used in decision-making.

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* Tasks that are specifically administrative (e.g., budget) take minimal time, and are subsumed under 2c of administrative support.

3. Procedural outcomes

   (a) inservice is modified to support the program

   (b) staff are assigned and accountabilities are modified

   (c) resources (time, materials) are allocated annually

   (d) local funds are used.

- The strongest predictors of school institutionalization are support from school-based administrators and instructional gain. This indicates that the program selected has to be one that really makes a difference in the classroom, and is sufficiently linked to the principal's priorities to influence administrative investment in affective and logistical leadership behaviors.

- District-wide institutionalization is strongly correlated with central office support and school-level institutionalization. The lighthouse school implementation strategy does not facilitate district-wide institutionalization. However, central office support is more evident when pilot/district or district-wide approaches are used, and in programs with high probability of instructional gain.

- If the program selected has proven its value elsewhere, but results in little or no instructional gain at a new site, the fidelity and intensity of use should be assessed. If both are high but apparent for only a few isolated teachers, administrative support needs to be improved and organizational, policy, and procedural outcomes assessed and modified if institutionalization is to occur.

<u>How can a state education agency (or large school system) use a relatively small amount of money to facilitate instructional gain</u>?

- In all LEA-SEA interactions, the SEA should be a supporter or facilitator of instructional improvement, acting on the assumptions that the SEA may influence but cannot control the LEA, and the immediate responsibility for instructional change rests with the LEA.

- Within the SEA, particularly in the early phases of project design, interactive strategic planning should be conducted to establish a clear common knowledge base of local interests, state expectations, and relevant research-based alternatives.

- The SEA can offer grants to participating LEAs, requiring matching funds after the first year, continuing funds after the third year only for expansion of local efforts, and expecting LEAs to attend to program weaknesses identified in annual evaluation reports.

- The SEA should sponsor a series of related training activities, carefully designed to link relevant research and exemplary practice, pre-contracting with LEAs so that expectations and responsibilities

are clear, coaching researcher-presenters to meet participants' needs, involving LEAs teams as presenters to publicize successes, conducting "matching" training activities for state staff and faculty of colleges and universities involved in pre-service, and putting into practice concepts and components of the Joyce and Showers training model.*

- The SEA should use existing organizational mechanisms and modify staff responsibilities for planning and delivery of services, rather than creating new structures or totally reassigning staff.

- The SEA should provide technical assistance to LEAs by establishing a cadre of technical assistants (TAs) with a strong knowledge base, on-going communication and learning opportunities, and time, administrative support, and professional capability to help LEAs carry out the plans designed by local teams.

- The SEA should encourage cost-effective implementation designs that build state initiatives into existing local priorities.

<u>If the innovation is directly related to a local priority, how can an LEA design implementation to ensure that program benefits are greater than investments (of staff, time, and funds)</u>?

- A cross-hierarchical team should be formed that takes responsibility for planning, making decisions, and modifying activities by using information about the relative effectiveness of the program. This team (plus other representatives of role groups) should have a thorough understanding of the innovation so that plans are realistic and policy and practice are interactive.

- A pilot/district or district-wide strategy can be used. In both cases, the goal is for all program eligible teachers to be implementing the model regularly by the end of the third year, and a process of incremental involvement is used. The pilot/district strategy begins by focusing on a very few schools, and expands by school, beginning in each school with the principal's support and an active team of volunteer teachers. The district-wide strategy begins by focusing on teachers (from all schools) with responsibility for a given subject area and grade level(s), and expands by grade level (and sometimes also by subject area). In both cases, awareness training should be conducted for all administrative and supervisory staff before teachers are trained. "First wave" participants should be volunteers to the extent feasible.

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* See Joyce, B.R., & Showers, B. <u>Power in staff development through research on training</u>. Alexandria, Va.: ASCD, 1984. Components of the model include: rationale and theory building (for awareness), demonstration and modeling (for conceptualization), practice and feedback (for skill development), on-site coaching (for application or horizontal transfer), and integrated learning (for executive control or vertical transfer).

- Attention should be paid to the indicators of institutionalization, particularly those relating to organizational outcomes and administrative support.

- Participating teachers should be given release time, and school teams should have common planning time in their first year of implementation, with more time available if curriculum materials are to be developed.

- Classroom instruction should not begin until teachers are prepared to teach a complete unit or course. Stops and starts, sporadic implementation, and low fidelity should be discouraged by team leaders providing relevant coaching or support so that participating teachers can experience success.

- Assessment of implementation processes and instructional gain should be on-going to inform decisions -- replicating successes, and dealing with problems as soon as they are identified.

How can an SEA maintain inter-agency harmony and encourage high productivity?

- The SEA should employ cross-hierarchical and inter-agency planning and decision-making.

- The SEA should put into practice a philosophy of assistance rather than monitoring, and of developmental assessment to make improvements rather than after-the-fact evaluation or pro forma review.

- The SEA should establish clear expectations for local projects and provide relevant assistance, information, and training to help LEAs meet those expectations. The TA should "press" for fidelity and intensity of implementation.

- The SEA should acknowledge local efforts, publicize successes, and facilitate networking.

- The SEA TAs should identify problems in their early stages, and alleviate or resolve them effectively, dealing with individual or organizational conflict and responding quickly to requests for help.

- The SEA should maintain program integrity, fostering beliefs and behaviors that facilitate instructional gain, open communication, and constructive problem-solving.

- The SEA should acknowledge the realities of failure by helping LEAs to terminate unsuccessful projects gracefully, rather than letting them slowly fade away.

- The SEA should acknowledge the interests of the various educational groups, such as colleges of higher education, and design activities to exchange information and/or explore opportunities for collaboration.

- The SEA should encourage real involvement by all role groups, including LEA superintendents, central office staff, school-based administrators, and teachers in exchanging information about program challenges and successes.

- The LEA leadership teams should develop plans through which involvement in the state initiative maintains program fidelity and also serves a local priority. The SEA should suggest revision of plans (or non-involvement) if local objectives are inappropriate to the innovation.

How can technical assistants be most useful in improving classroom instruction?

- If staff are assigned as part-time technical assistants (TAs), they need to form a group that has strong leadership from a senior administrator, and real support from their regular supervisors. The TA group coordinates program planning, communication, and resource allocation, and designs major awareness-level training activities. The group invests energy in achieving program goals (avoiding tangential or pro forma activities).

- Staff selected as TAs should value the program and have regular assignments that can readily be integrated with the improvement project. Their responsibilities should be adjusted so that each TA team (of two or three people) spends 40 to 60 days a year on the improvement project.

- Effective TAs should have a sound knowledge of instruction, curriculum development, staff development, planned change and organizational analysis, and the models/innovations to be implemented. They should be familiar with schools and school systems, particularly those to they which are assigned, and should establish positive productive relationships with those systems, maintaining program integrity in the context of local constraints.

- In order of time invested overall, the following tasks are addressed by TAs: (1) visiting sites to assist and review local implementation; (2) conducting training; (3) developing program activities and planning, at state and local levels; (4) administration and budget; (5) maintaining communication and exchanging ideas within the TA system; (6) building knowledge; (7) providing general support to local educators; (8) disseminating; (9) selecting and developing materials; and (10) evaluation. In a three year effort, most TA time is needed in the second year.

- Three recurring problems should be addressed by the TA group: (1) conflicting demands of regular and project responsibilities, (2) individual opportunity to learn and group attention to effective communication, and (3) differences between state and local expectations of the responsibilities of each organization and the "ownership" of the program.

- From a local perspective, TAs are useful when they are program advocates; provide quality information, training, and assistance relevant to local needs to facilitate rich fidelity of implementation; and engage in cross-hierarchical problem-solving that helps to clarify program purpose, maintain harmony, and contribute to instructional improvement. TAs should support local leadership teams, and acknowledge successes.

How can training activities be most useful in improving classroom instruction?

- The overall design for training should include various kinds of activities for various audiences. In general, trainers should recognize that the more intense the intended outcome, the greater the frequency of trainer/trainee interaction, and the smaller the ratio of trainers to trainees. Also, the less intense the outcome (e.g., awareness), the less investment is likely from participants.

- While participants enjoy the less intense kinds of training activities, they value and are more likely to be influenced by the more intense activities (especially when content is highly relevant). As the project progresses, training activities should increase in intensity, and when participants have "executive control" of the model/innovation, training should stop.

- Training should be directly related to participants' need to know, building on existing knowledge, and addressing current tasks and interests. Pre-contracting clarifies mutual expectations of participants' responsibilities for action following training.

- Training should be designed to be transferred, using a trainer of trainers approach, or expecting district and school teams to follow through on the more intense activities.

- Team training, with common activities for everyone as well as activities for specific roles and for groups with varying levels of expertise, should address both program content and implementation processes.

- Training should be conducted by outside "experts," such as program developers, and by state and local instructional leaders, with each event including trainers from several role groups. ("Outsiders" should be carefully coached about trainees' interests.)

- Teachers who conduct training usually are most successful when they form trainer teams of two or three people. Individual teacher-trainers need strong support from administrative staff.

- The final components of training (on-site coaching and integrated learning) can be facilitated by three-person teams in each school which are supported by a district-wide network.

- While the integrity of the knowledge base (program fidelity and completeness) should be maintained, trainers should be flexible in the delivery of training, modifying methods to meet participants' needs (e.g., using different approaches for different schools).

If the innovation(s) match local priorities, and the research on planned change is applied to facilitate implementation, what is the likelihood of local institutionalization of an externally-initiated program?

- The likelihood of some projects being institutionalized is increased by the use of the research on planned change, but schools are impacted by the constant changes of society. Schools and school systems cannot accurately predict or control the social pressures or environmental turbulence that can change priorities or undermine programs. However, they can select innovations most likely to address the basic business of schooling -- effective instruction -- in which they naturally invest their own efforts and for which external support may be a welcome temporary addition.

- In lighthouse schools, institutionalization is probable if the principal's priorities are addressed, there are no conflicting innovations, and at least three teachers advocate and implement the innovation regularly.

- Institutionalization is unlikely if funds are used primarily for training (a capacity-building approach) with voluntary application by trainees, unless school teams pre-contract and those teams receive follow-up assistance in the context of an administrative "press" for implementation.

- Institutionalization is likely where the indicators (described earlier) are attended to from the beginning of the program, where materials development is essentially completed by the middle of the second year, and where total local ownership is expected by the end of the third year.

If instructional gain is the intended outcome, what kind of innovation is best?

- Instructional gain is defined as (1) increase in teachers' knowledge and skill in effective instruction and a positive attitude toward the program, and (2) increased student achievement and acceptance of responsibility for their own learning, and a positive attitude towards the program.

- Since instructional gain is such a comprehensive construct, it is unlikely to be achieved without careful implementation and planning, a reasonable scope and intensity of use, and application of an innovation designed to achieve such an outcome. The four models used in SITIP were so designed, and careful attention was paid to implementation processes.

- Assuming appropriate implementation and good fidelity, greatest instructional gain is likely if Active Teaching or Mastery Learning are used, with best results in elementary mathematics, or for structured academic subjects in secondary schools. Student Team Learning results in somewhat less instructional gain since educators tend to use it sporadically. Least gain is likely for Teaching Variables since educators tend to use it for assessment rather than for improvement.

Was Maryland's School Improvement Through Instructional Process program a success?

- Yes it was. Furthermore, it continues to be a success since a large number of schools are involved, many educators have increased their knowledge and skill in planned change and instructional improvement, and many students have increased their achievement, participation, and enjoyment through SITIP-based lessons.

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